Medical TIMES

THE JOURNAL OF GENERAL PRACTICE

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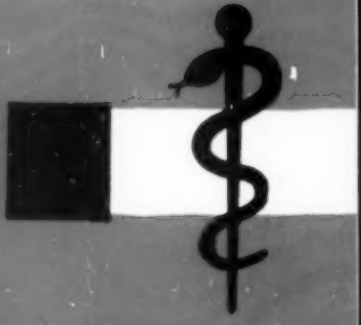


announcing

GANTRISIN CREAM *Roche*

for vaginal use

Gantrisin Cream offers a three-fold advantage in the *prophylactic* and *therapeutic* management of *vaginitis, cervicitis, vulvitis and related gynecologic disorders:*

1. wide antibacterial spectrum, plus high solubility, plus low incidence of sensitization.

2. acid pH (4.6) providing unfavorable medium for vaginal pathogens.

3. aesthetic appeal—pleasant white vanishing cream.

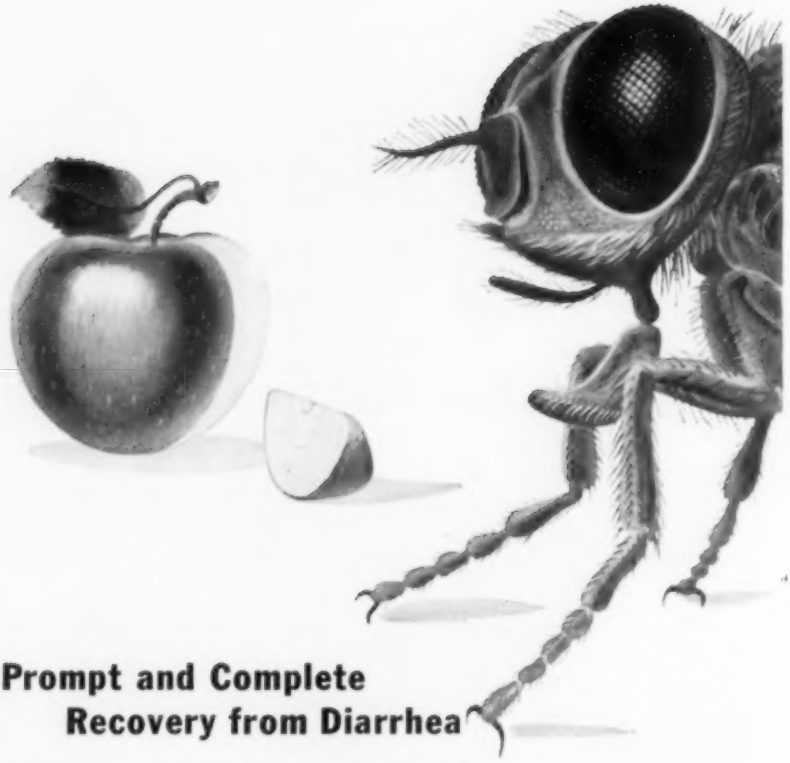
Dosage and Administration: from one-half to one applicatorful (2.5 - 5 cc) introduced into the vagina twice daily (in the morning and upon retiring).

Supplied: 3-oz tubes, with or without applicator.

Caution: If patient develops sensitization, treatment should be discontinued.

GANTRISIN® — brand of sulfisoxazole (3, 4-dimethyl-5-sulfanilamido-isoxazole)

HOFFMANN–LA ROCHE INC · ROCHE PARK · NUTLEY 10 · N. J.



For Prompt and Complete Recovery from Diarrhea

STREPTOMAGMA—the modern antidiarrheal agent—provides potent bacteriostatic, adsorptive, and protective actions; ". . . stops the diarrhea sooner, more effectively, and with less recurrence."[1] Soothes the irritated bowel, promotes development of well-formed stools.

STREPTOMAGMA—for *common* diarrheas and for specific therapy in *infectious* diarrheas due to streptomycin-sensitive organisms.

1. Russ, I. D.: Personal communication

STREPTOMAGMA®

Dihydrostreptomycin Sulfate and Pectin with Kaolin in Alumina Gel

Dosage: *Children, 1-2 teaspoonfuls 3 or 4 times daily*
Adults, 4 teaspoonfuls 3 or 4 times daily

Supplied: Bottles of 3 fluidounces

Wyeth®

Philadelphia 2, Pa.

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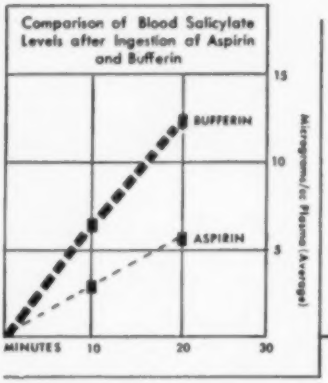
Features

Medical Times is published monthly by Romaine Pierson Publishers, Inc., with publication offices at 34 North Crystal Street, East Stroudsburg, Pa. Executive, advertising and editorial offices at 676 Northern Boulevard, Great Neck, L. I., N. Y. Acceptance under section 34.64 P.L. and R., authorized February 23, 1950 at East Stroudsburg, Pa.

Faster Pain Relief with BUFFERIN®

1 ACTS TWICE AS FAST AS ASPIRIN

The antacids in Bufferin speed its pain-relieving ingredients through the stomach and into the blood stream. Actual chemical determinations show that within ten minutes after Bufferin is ingested blood salicylate levels are higher than those attained by aspirin in twice this time.[1]



2 DOES NOT UPSET THE STOMACH

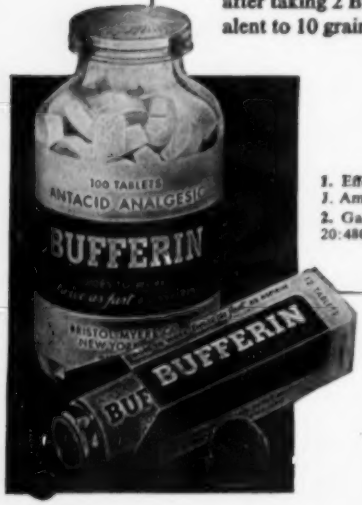
Bufferin's antacid ingredients protect the stomach against aspirin irritation. This has been clinically demonstrated on hundreds of patients.

in usual doses

In a series of 238 cases, 22 had a history of gastric distress due to aspirin but only one reported any distress after taking 2 Bufferin tablets (equivalent to 10 grains of aspirin).[1]

in large doses

In a recent study group, 1006 patients received, over a 24 hour period, 12 Bufferin tablets (equivalent to 60 grains of aspirin). Although 72 had a history of being sensitive to aspirin, only 18 reported any gastric side-effect with Bufferin.[2]



1. Effect of Buffering Agents on Absorption of Acetylsalicylic Acid. J. Am. Pharm. Assoc., Sc. Ed. 39:21, Jan. 1950
2. Gastric Tolerance for Aspirin and Buffered Aspirin. Ind. Med. 20:480, Oct. 1951

INDICATIONS: Simple headaches, neuralgias, dysmenorrhea, muscular aches and pains, discomfort of colds and minor injuries. Particularly useful when gastric hyperacidity is a complication. Useful for relieving pain in the treatment of arthritis.

EACH BUFFERIN TABLET contains 5 grains of acetylsalicylic acid, together with optimum amounts of the antacids aluminum glycinate and magnesium carbonate.

AVAILABLE in vials of 12 and 36 tablets and in bottles of 100. Tablets scored for divided dosage.

Bristol-Myers Co., 19 West 50 St., New York 20, N. Y.

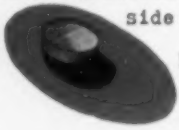
CONTENTS

NEOHYDRIN®

BRAND OF CHLORMERODRIN

NORMAL OUTPUT OF SODIUM AND WATER

Individualized daily dosage of NEOHYDRIN -- 1 to 6 tablets a day as needed -- prevents the recurrent daily sodium and water reaccumulation which may occur with single-dose diuretics. Arbitrary limitation of dosage or rest periods to forestall refractivity are unnecessary. Therapy with NEOHYDRIN need never be interrupted or delayed for therapeutic reasons. Because it curbs sodium retention by inhibiting succinic dehydrogenase in the kidney only, NEOHYDRIN does not cause side actions due to widespread enzyme inhibition in other organs.



Prescribe NEOHYDRIN in bottles of 50 tablets. There are 18.3 mg. of 3-chloromercuri-2-methoxy-propylurea in each tablet.

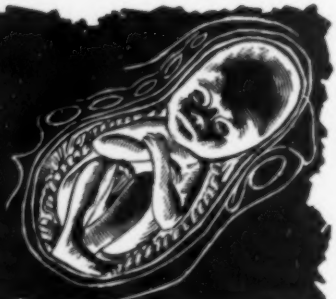
Leadership in diuretic research

LAKESIDE LABORATORIES, INC · MILWAUKEE 1, WISCONSIN

MEDICAL BOOK NEWS

96% BIRTH RATE

with des or desPLEX



TWO DEPENDABLE PRODUCTS FOR LIFE *in* THREATENED ABORTION, HABITUAL ABORTION AND PREMATURE LABOR

des, the only micronized, triple crystallized (Grant Process) Stilbestrol (U.S.P.) Tablets—used in the treatment of pregnant women, with a history of one, two or more abortions—***averaged 96% normal live babies delivered***[1,2,3].

After extensive clinical experience with des, Karnaky[1], Gitman and Koplowitz[2] and Ross[3] as well as countless other clinicians wholeheartedly endorse the sound therapeutic necessity for the use of des, in threatened abortion, habitual abortion and premature labor.

In a most recent publication, Karnaky has demonstrated that des, in massive doses (275 milligrams daily) provides optimum therapeutic results with maximum safety.

des—25 milligram tablets—highly micronized, triple crystallized (Grant Process) Stilbestrol (U.S.P.)—dissolve within a few seconds and are uniformly absorbed into the blood stream. Available in containers of 30 and 100 tablets.

new desPLEX—vitaminized, micronized Stilbestrol (U.S.P.). Border-line deficiency of B complex, especially Folic Acid, may sometimes prevent maximum utilization of estrogens. Histories of such cases indicate that the woman had difficulty in metabolizing endogenous or ingested estrogens. Not unusually, mild to severe nausea and vomiting is symptomatic. For additional support, when indicated, prescribe desPLEX, micronized Stilbestrol (U.S.P.), fortified with vitamin C plus B complex, including Folic Acid and B_{12}.

Karnaky[4] and Javert[5] agree that C and B complex vitamins and Folic Acid are necessary for the normal physiological metabolism of estrogens. Jailer[6] further substantiates that a border-line deficiency of Folic Acid may result in premature separation of the placenta. *That is why desPLEX is the product of choice.*

desPLEX—25 milligram tablets—vitaminized, micronized, triple crystallized (Grant Process) Stilbestrol (U.S.P.) fortified with C and B complex vitamins, particularly Folic Acid. Available in containers of 30 and 100 tablets.

For further information, write:

Medical Director

GRANT CHEMICAL COMPANY, INC.

121 East 24th Street

New York 10, N. Y.

●

References:

1. Karnaky, K. J., Amer. J. Obst. & Gyn. 53:312, 1947. 2. Gitman, L. and Koplowitz, A., New York State J. Med. 50:2823, 1950. 3. Ross, J. S., N. Nat. M.A. 43:20, 1951. 4. Karnaky, Karl J., Surg., Gyn. & Obst. 91:617, 1950. 5. Javert, C. T., New York State J. Med. 48:2595, 1948. 6. Jailer, J. W., J. Clin. Endrocinol. 9:557, 1949.

Medical TIMES

THE JOURNAL OF GENERAL PRACTICE

Incorporating the Long Island Medical Journal and Western Medical Times

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whole-root Raudixin:

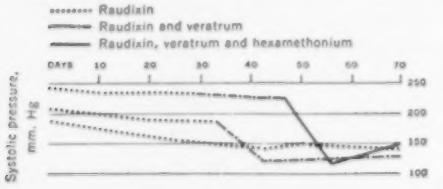
safe, smooth, gradual reduction of blood pressure

Raudixin is the most prescribed of rauwolfia preparations. It is *powdered whole root* of Rauwolfia serpentina—not just one alkaloid, but all of them. Most of the clinical experience with rauwolfia has been with Raudixin.

Raudixin lowers blood pressure in gradual, moderate stages. "A sense of well-being, decrease in irritability, 'improvement in personality' and relief of headache, fatigue and dyspnea" are frequently described by patients.[1]

Raudixin is base-line therapy. In mild or moderate cases it is usually effective alone; "...when rauwolfia is combined with other hypotensive agents, an additive hypotensive effect frequently is observed even in severe hypertension."[2] "It produces no serious side effects. It apparently does not cause tolerance."[1] 50 and 100 mg. tablets, bottles of 100 and 1000.

Raudixin alone and combined with other hypotensive agents



Raudixin Squibb rauwolfia

SQUIBB

1. WILKINS, R. W., AND JUDSON, W. E.: NEW ENGLAND J. MED. 248:48, 1953.
2. FREIS, E. D.: M. CLIN. NORTH AMERICA 38:1163, 1954.

BOARD OF ASSOCIATE EDITORS

The known clinical advantages of rapid absorption, wide distribution in body tissues and fluids, prompt response and excellent toleration, PROVED by the extensive experience of physicians in successfully treating many common infections due to susceptible gram-positive and gram-negative bacteria, rickettsiae, spirochetes, certain large viruses and protozoa, have established

Terramycin®

Brand of oxytetracycline

as a broad-spectrum antibiotic of choice PROVED

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Pfizer

PARITY AND CONCEPTION CONTROL

A report covering a total of 425 patient years of exposure

A meticulous study[1] of 325 patients using jelly alone as a contraceptive measure notes a markedly higher degree of effectiveness for this technic "among patients of lower parity."

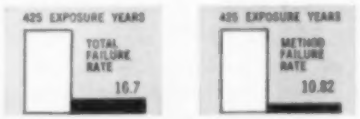
Apparently this significant conclusion can be attributed mainly to the anatomic factor. The less relaxed vagina in the lower parity group permits a more successful confinement of the jelly to the region of the external os.

For a period of three years, Guttmacher and associates[1] studied the efficacy of jelly-alone technic for contraception among multiparas and patients of lower parity. Although the method achieved marked success among all groups, a few unplanned pregnancies did occur. It was possible to categorize all of these unplanned pregnancies into either "method failures" or "patient failures." Patient failures were those wherein patients readily admitted occasional or frequent omission of the use of the jelly before intercourse. Method failures were attributed only to those cases where patients averred a complete adherence to the use of the jelly.

With 325 patients using the jelly-alone [RAMSES VAGINAL JELLY] technic for periods ranging from 3 months to 3 years, a computation showed that there was a total of 425 exposure years involved. The total unplanned pregnancy rate averaged only 16.7 per 100 patient years of exposure.

When method failures only were computed, the unplanned pregnancy rate dropped to 10.82 per 100 years of exposure.

1. Finkelstein, R.; Guttmacher, A., and Goldberg, R.: Am. J. Obst. & Gynec. 63:644, Mar., 1952.



Conception control in 325 patients using RAMSES Vaginal Jelly for 3 months to 3 years[1]

On the basis of observations, the conclusion is valid that while RAMSES VAGINAL JELLY is markedly effective as a jelly-alone technic, the method is "one of choice" in patients of lower parity and, of course, among the nulliparous.

Because parity, motivation, and patient intelligence all play a major part in the success of a contraceptive technic, the final basis for selection of the contraceptive method must rest with the physician whose judgment is predicated on a thorough evaluation covering all of these factors.

When in the judgment of the physician, parity, anatomic factors, or motivation indicate the use of the diaphragm-and-jelly method of contraception, the RAMSES® TUK-A-WAY® Kit is recommended. The RAMSES® diaphragm is flexible and cushioned—provides an optimum barrier and utmost comfort. In combination with RAMSES jelly it offers a reliable contraceptive technic.

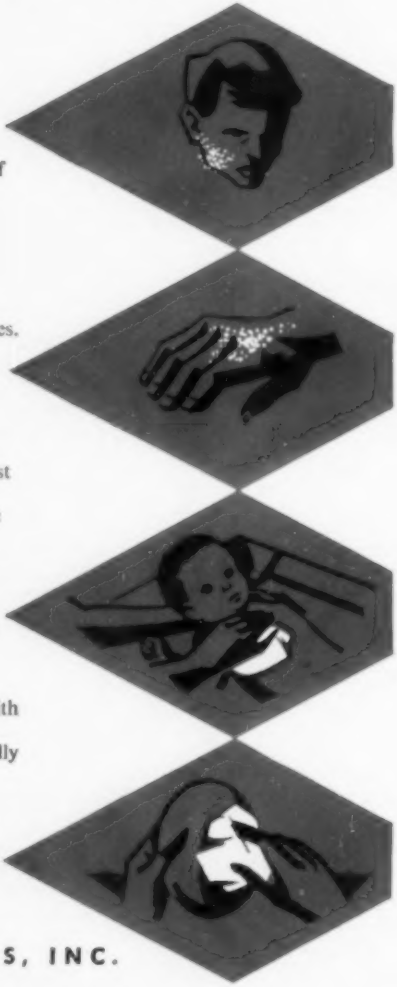
Physicians may now obtain a complimentary package of RAMSES VAGINAL JELLY*. Requests on your prescription blank should be mailed to Dept. MA1, Julius Schmid, Inc., 423 West 55th Street, New York 19, N. Y.

*Active agent, dodecaethyleneglycol monolaurate 5%, in a base of long-lasting barrier effectiveness.

JULIUS SCHMID, INC. *gynecological division*
423 West 55th Street, New York, 19, N. Y.

When Soap is Contraindicated

...Cleanse Sensitive Skin Effectively without Irritation



Acidolate

a non-lathering sulfated oil detergent, is the hypoallergenic skin cleanser of choice when a liquid emulsifying agent of low surface tension is required. It is an excellent cleansing agent in acne vulgaris, for removal of ointment and greases from the skin, hair or wounds, and as a shampoo for ringworm of the scalp.

Supplied: 8 fluid ounce and 1 gallon bottles.

Dermolate

"Milder than the mildest castile," a nonirritating detergent in cake form, is an ideal cleanser where even the mildest soap is poorly tolerated. It is ideally suited for routine use as a hypoallergenic skin cleanser; especially recommended for normal skin care of infants and young children.

Supplied: 4 ounce cakes.

Terjolate

a household cleanser designed for use with Acidolate and Dermolate, is neither irritating nor sensitizing—it is an unusually effective cleanser for all household purposes.

Supplied: 8 and 16 fluid ounce and 1 gallon bottles.

White's

WHITE LABORATORIES, INC.

KENILWORTH, N. J.

Off the Record . . .

True Stories From Our Readers

Each incident described has been contributed by one of our readers. Contributions describing actual and unusual happenings in your practice are welcome. For obvious reasons only your initials will be published. An imported German apothecary jar will be sent in appreciation for each accepted contribution.

Stands To Reason

During World War II, while I was Chief Medical Officer of an Induction Station, I once had occasion to check on the physical qualifications of an inductee who was supposed to have a heart murmur. I asked this draftee if he had ever applied for life insurance, hoping to determine whether he had been adjudged a poor risk in the past.

The narrative went as follows:

Draftee: "Yas suh, I applied for life insurance once."

Med. Officer: "Did you get it?"

Draftee: "No, suh."

Med. Officer: "Why wouldn't the insurance company give it to you?"

Draftee: "'Cause I ain't dead yet."

M. D. H., M.D.
Washington, D. C.

Contortionist Extraordinary

Recently a sweet but much worried lovely teen ager presented herself at my office with the request for a vaginal examination, on account of having noted a tumor—with the aid of mirrors—and tablespoons—high up in the vagina. The growth was red and looked like a cherry. This valuable information was firmly substantiated by her square jawed, thin lipped, mother with frequent affirmative nodding of the head and suggestions of a cancer—evidently to help me with the diagnosis!

After manual and speculum examination they were informed that the young lady had no tumor, and that the so-called "cherry" was a normal cervix. Much relief was expressed by mother and daughter at the result of the examination but the latter upon turning her head suddenly exclaimed "Ouch! My poor stiff neck!"

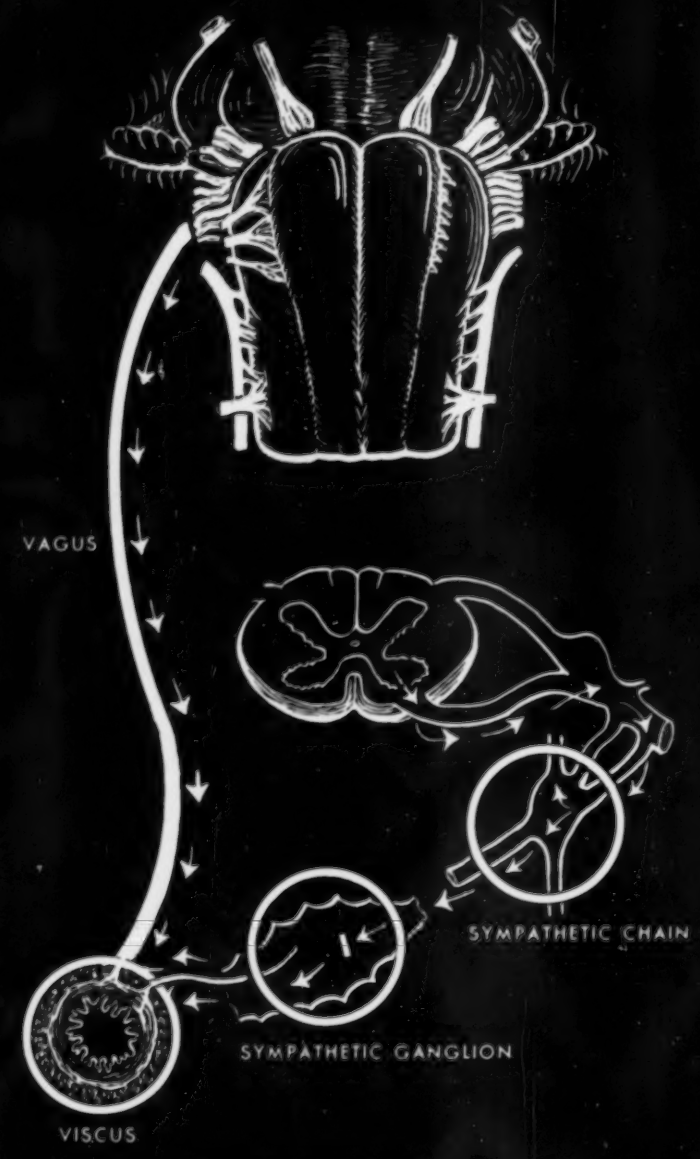
L. E. C., M.D.
Auburn, Calif.

Too Much Oomph!

About thirty years ago, in my earlier practice, I had a most embarrassing, but amusing incident happen to me.

I had been at a farm house most of the day on a confinement case, but there was very little progress. In desperation, I called in a doctor friend to assist me. As was the practice in those days, we had the patient crosswise in the bed, and I gave ether while the other doctor applied forceps. Just as he was ready to deliver the baby, every

—Concluded on page 21a



Sites at which Pro-Banthine inhibits excess autonomic stimuli through control of acetylcholine mediation.

Combined neuro-effector and ganglion inhibiting action of Pro-Banthine consistently controls gastrointestinal hypermotility and spasm and the attendant symptoms.

Pro-Banthine® For Anticholinergic Action in the Gastrointestinal Tract

Pro-Banthine is an improved anticholinergic compound. Its unique pharmacologic properties are a decided advance in the control of the most common symptoms of smooth muscle spasm in all segments of the gastrointestinal tract.

By controlling excess motility of the gastrointestinal tract, Pro-Banthine has found wide use[1] in the treatment of peptic ulcer, functional diarrheas, regional enteritis and ulcerative colitis. It is also valuable in the treatment of pylorospasm and spasm of the sphincter of Oddi.

Roback and Beal[2] found that Pro-Banthine orally was an "inhibitor of spontaneous and histamine-stimulated gastric secretion" which "resulted in marked and prolonged inhibition of the motility of the stomach, jejunum, and colon. . . ."

Therapy with Pro-Banthine is remarkably free from reactions associated with parasympathetic inhibition. Dryness of the mouth and blurred vision are much less common with Pro-Banthine than with any other potent anticholinergic agent.

In Roback and Beal's[2] series "Side effects were almost entirely absent in single doses of 30 or 40 mg. . . ."

Pro-Banthine (β-diisopropylamino-ethyl xanthene-9-carboxylate methobromide, brand of propantheline bromide) is available in three dosage forms: sugar-coated tablets of 15 mg.; sugar-coated tablets of 15 mg. of Pro-Banthine with 15 mg. of phenobarbital, for use when anxiety and tension are complicating factors; ampuls of 30 mg., for more rapid effects and in instances when oral medication is impractical or impossible.

For the average patient one tablet of Pro-Banthine (15 mg.) with each meal and two tablets (30 mg.) at bedtime will be adequate. G. D. Searle & Co., Research in the Service of Medicine.

---

1. Schwartz I. R.; Lehman, E.; Ostrove, R., and Seibel, J. M.: Gastroenterology *25*:416 (Nov.) 1953.
2. Roback, R. A., and Beal, J. M.: Gastroenterology *25*:24 (Sept.) 1953.

PROTECTION AGAINST

POISON IVY

POISON OAK

POISON SUMAC

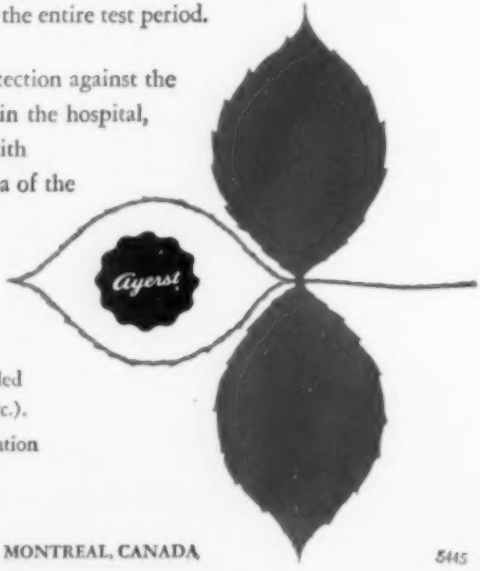
"KERODEX"®

a new and more effective barrier cream

100 PER CENT PROTECTION AGAINST POISON IVY REPORTED IN A RECENT FIELD TEST* EMPLOYING "KERODEX"

"Kerodex" was tested by a major railway company on 22 individual teams of section men totalling 92 men during four months from May to September when danger is at its peak. Over 70 per cent of these men had previously suffered from poison ivy or from other poisonous plants, and for the majority, this was an annual occurrence causing complete or partial disability. With "Kerodex," not a single case of dermatitis occurred during the entire test period.

"Kerodex" also offers highly effective protection against the many irritants encountered in the home, in the hospital, and in the physician's office. It may be applied with equal safety to the face, hands, or any other area of the skin. It is easy to use and economical.



There are two types available:

"Kerodex" No. 71 (water-repellent) protects against so-called wet work (soaps and detergents, antiseptics, etc.).

"Kerodex" No. 51 (water-miscible) protects against so-called dry work (solvents, paints, waxes, poison ivy, oak, sumac, etc.).

*A brochure giving details of the test and complete information on "Kerodex" is available upon request.

Supplied in 4 oz. tubes and 1 lb. containers.

AYERST LABORATORIES • NEW YORK, N. Y. • MONTREAL, CANADA

5445

—Concluded from page 17a

slat in the bed gave away and we all went flat on the floor!

To say the least, it was amusing to see him lying on his stomach, straining on the forceps; but the "operation was successful, and both mother and baby lived."

R. B. T., M.D.
Somers, Conn.

Off the Record

Nurses can be embarrassed too! Our First Aid room was filled with male industrial patients when a young woman walked in, obviously in a hurry, and said she had an appointment to see the doctor immediately upon arrival. I questioned her, trying to find out whether she was injured, ill, or was there for pre-employment examination. She said "no" to every question asked and finally blurted out, "I have venereal warts."

Needless to say, I found work in another room in a hurry. I found out later that her "Mom" had sent her over for quick attention so she could get back to "work."

L. D., R.N.
Tampa, Fla.

All Comes Out in the End!

One morning, a nervous mother phoned for advice. "My baby is having an unlucky day. First, he fell out of the high chair and banged his head. A few minutes later, he cut his finger on a toy telephone. Now, he has swallowed the band-aid that I put on his cut finger. Please give me advice. I am worried that the band-aid may get stuck somewhere in his stomach."

Milk of magnesia did the trick!

M. L. S., M.D.
New York, N. Y.

Penicillin Bullet

A little five year old came out of the doctor's office crying. I asked him, "What did the Doctor do to you?" He replied, "I heard him tell Mommy he was going to give me a shot . . . and he did . . . in the BUT!"

L. D., R.N.
Tampa, Fla.

Female Trouble

One of my female patients was undergoing treatment for a pelvic disorder which caused her considerable lower abdominal distress. Her husband, whose contact with the medical profession was quite sketchy, came to my office for a check-up.

When my nurse, in making out his card, asked what his trouble was, he thought for some time and finally responded, "Female Trouble." Examination revealed lower abdominal complaints on the basis of a prostatitis. Perhaps his lack of anatomical differences wasn't too far fetched.

C. W. H., M.D.
Lebanon, Mo.

Rhyme(?) or Reason?

Patient to doctor: "I'm very sick; I have a chronical Bronichal Pneumonia!"

W. K. B., M.D.
Miami, Fla.

A New Era in Medicine

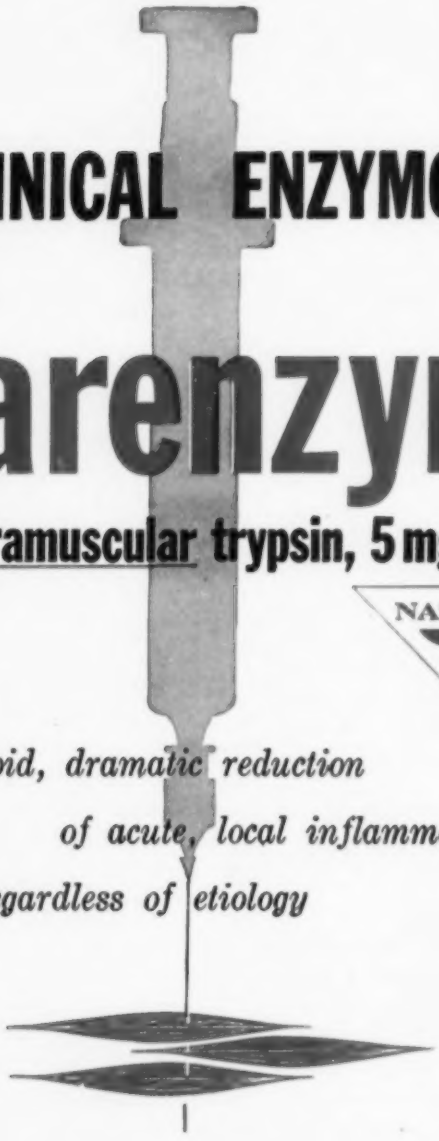
CLINICAL ENZYMOLOGY

Parenzyme

Intramuscular trypsin, 5 mg./cc.

NATIONAL

For rapid, dramatic reduction
of acute, local inflammation
regardless of etiology



An Entirely New Type of Therapy...

PARENZYME is Safe. No toxic reactions have been reported following use of this new, INTRAMUSCULAR trypsin.

PARENZYME is Not an Anticoagulant. Anti-inflammatory results do *not* depend on alterations of the clotting mechanism.

PARENZYME Catalyzes a Systemic Proteolytic Enzyme System.

rapidly reduces acute, local inflammation

in *phlebitis, thrombophlebitis, phlebothrombosis*
in *iritis, iridocyclitis, chorioretinitis*
in *traumatic wounds*

PARENZYME has also proved effective in management of varicose and diabetic leg ulcers.

DOSAGE: *Initial Course:* 2.5 to 5 mg. (0.5 cc. to 1 cc.) of PARENZYME (INTRAMUSCULAR trypsin) injected deep intragluteally 1 to 4 times daily for 3 to 8 days. *Maintenance Therapy:* In chronic or recurrent diseases, 2.5 mg. once or twice a week may be required for maximum benefit.

Vials of 5 cc. (5 mg./cc.: crystalline trypsin in sesame oil), by prescription only. *Write for complete information.*

THE NATIONAL DRUG COMPANY *Philadelphia 44, Pa.*

mineral-vitamin protection
during **PREGNANCY**
and **LACTATION**

Walker

PRECALCIN®

CAPSULES

organic and inorganic calcium, phosphorus, iron, and essential vitamins

small, easy-to-take capsules

just one capsule t.i.d.

dry fill, no fish oil

exceptional tolerance and patient-appeal

bottles of 100, 500, 1000 —all economically priced

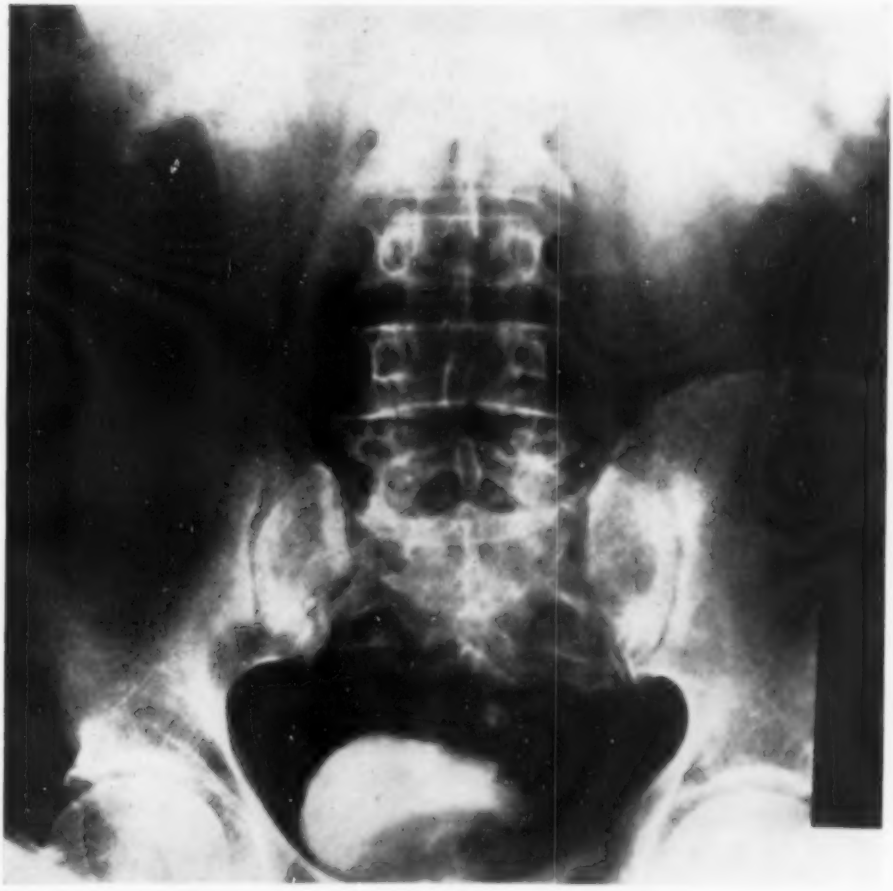
WALKER LABORATORIES, INC.
MOUNT VERNON, NEW YORK

Diagnosis, Please!

WHICH IS *YOUR* DIAGNOSIS?

1. Left hydronephrosis
2. Urinary bladder carcinoma
3. Urinary bladder diverticulum
4. Rectal carcinoma
5. Prostatic carcinoma

(ANSWER ON PAGE 96a)



S.K.F.'s widely acclaimed new **antihistamine** preparation

TELDRIN*

chlorprophenpyridamine maleate

SPANSULE*

8 mg. & 12 mg.

brand of sustained release capsules

for continuous and sustained relief of allergic disorders

"BEST METHOD AVAILABLE"

30 patients, severe allergic symptoms. "It is our belief that this drug used in this form provides the best method available for antihistamine medication."

—ROGERS, H.L.: Ann. Allergy 12:266 (May-June) 1954.

"HEARTILY ENDORSED"

357 patients, allergic disorders. "66% of the group obtained excellent symptomatic relief; 16% obtained good relief; 11%, fair relief; 7% obtained no relief."

"['Teldrin' *Spansule*] capsules, aside from their long-acting property and low incidence of side effects, provide an obvious advantage of patient acceptance. . . . they were heartily endorsed by nearly all patients."

—GREEN, M.A.: Ann. Allergy 12:273 (May-June) 1954.

"MOST USEFUL"

128 patients, hay fever. "From these results, it is believed that the ['Teldrin' *Spansule*] capsule is the most useful antihistaminic preparation currently available as adjuvant therapy in treating hay fever."

—MULLIGAN, R.M.: J. Allergy 25:358 (July) 1954.

around-the-clock protection

Adults and Older Children: One capsule (12 mg.) q12h.

Younger Children: One capsule (8 mg.) q12h.

made only by

Smith, Kline & French Laboratories, Philadelphia

the originators of sustained release oral medication

*T.M. Reg. U.S. Pat. Off.

Patent Applied For

gentia·jel

ONLY gentian violet treatment you can prescribe

IN SINGLE-DOSE APPLICATORS

for

antibiotic moniliasis[1]

diabetic vulvitis[2]

vaginal thrush[3]

pregnancy moniliasis

93% **clinically effective**[4] in the most resistant cases during the last trimester of pregnancy

1. Editorial: J.A.M.A. 149:763 (June 21) 1952. 2. Bernstine, J.B. and Rakoff, A.D. "Vaginal Infections, Infestations, and Discharges," the Blakiston Co., Inc., 1953, p. 271. 3. Combined Textbook of Obstetrics and Gynecology, Edited by Dugald Baird, 5th Ed., E. & S. Livingstone Ltd., 1950. 4. Waters, E.G. and Wager, H.P.: American Jour. of Obstetrics & Gynecology, 60:885, 1950.

AVAILABILITY: *gentia·jel* 12 single-dose plastic disposable applicators on prescription only.

SAMPLES ON REQUEST

Westwood Pharmaceuticals · 468 Dewitt Street, Buffalo 13, N. Y.

DIVISION OF FOSTER-MILBURN CO

the modern relaxant-sedative!

Seconesin relaxes tense, anxious, nervous patients so efficiently throughout the day—it stops tension which destroys sleep at night.

The new relaxant-sedative, **Seconesin,** *relaxes both mental and physical tensions* — yet leaves the patient mentally alert—not drowsy—able to cope with the day's needs and work.

Seconesin induces a marked feeling of well-being -- not the stimulated euphoria of amphetamine-like drugs, but a relaxed feeling of being pleasantly at ease.

A Higher Degree of Safety is assured with **Seconesin.** It acts rapidly — is eliminated rapidly — and is non-cumulative.

SAMPLES

Send for **SAMPLES** for patient or personal trial and detailed information.

Composition of SECONESIN: Lime-green, scored tablets each containing Mephenesin 400 mg. and Secobarbital 30 mg.

Dose: 1 tablet t.i.d., p.c.; 1 or 2 tablets on retiring if needed.

CROOKES LABORATORIES, INC. Crookes MINEOLA, N. Y.

Therapeutic Preparations for the Medical Profession

DURING THE MENOPAUSE, the relaxant-calmative action of **SECONESIN** often suffices to keep distressing symptoms under control.

Coroner's Corner

"The Unwanted Child"

One day, during my twenty-four years as coroner, I was called to attend a woman who was in labor. She was alone in her brother's home, as he and his family were away vacationing.

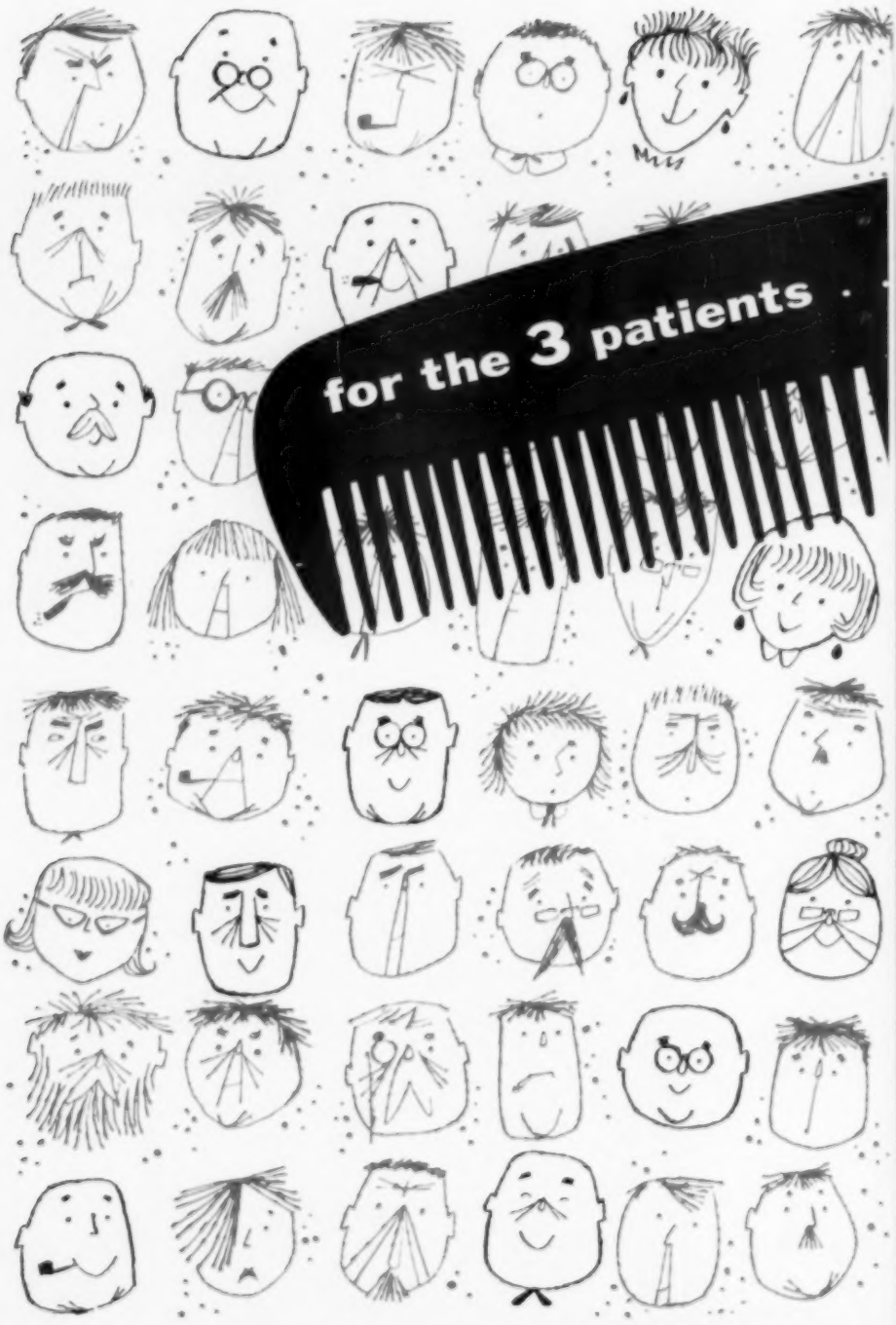
Upon examination I found that the head of the baby had emerged from the vagina, and the baby appeared lifeless. Further inspection revealed some marks on the infant's neck. There were no labor pains or uterine contractions. The delivery was completed by extracting the baby and expressing the placenta.

The infant was then taken to a mortuary and an autopsy confirmed the supposition that death was due to strangulation.

The woman was subsequently questioned and she confessed that the baby was illegitimate and because of this fact she had choked the baby to death as soon as the head was born. This act caused the contractions to cease thereby bringing an otherwise normal labor to a standstill.

The woman was brought to trial and served a fifteen year sentence for infanticide.

B.J.C., M.D.
Austin, Minn.


for the 3 patients

who have

seborrheic dermatitis

of the scalp

FOR the scalp-scratchers, shoulder-brushers and comb-clutterers, there's welcome relief with SELSUN Sulfide Suspension.

Published reports on more than 400 cases[1-3] show that SELSUN completely controls seborrheic dermatitis in 81 to 87 per cent of all cases, and in 92 to 95 per cent of common dandruff cases. It keeps the scalp free of scales for *one to four weeks*—relieves itching and burning after only two or three applications.

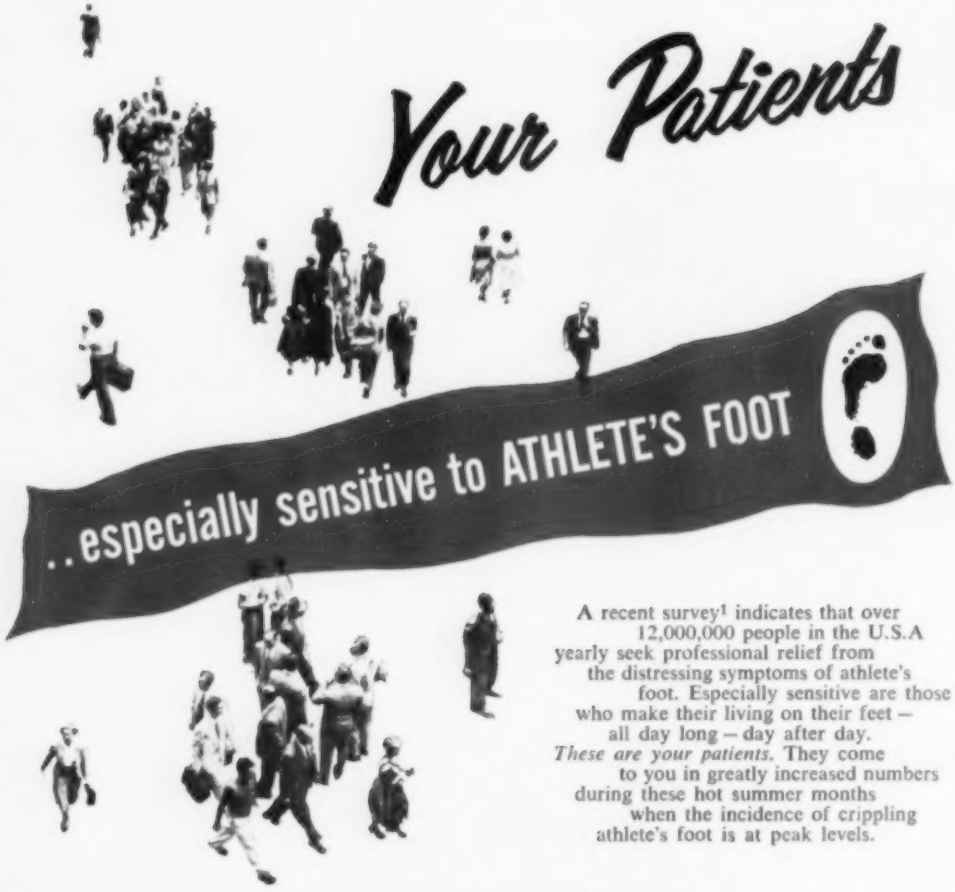
SELSUN is remarkably simple to use. Your patients apply it and rinse it out while washing the hair. It takes little time. No complicated procedures or messy ointments. Ethically advertised and dispensed only on prescription. In 4-fluidounce bottles with directions on label. Abbott

prescribe... **SELSUN®**

SULFIDE *Suspension*

(SELENIUM SULFIDE, ABBOTT)

1. Slepyan, A. H. (1952), Arch. Dermat. & Syph., 65:228, February.
2. Slinger, W. N., and Hubbard, D. M. (1951), *ibid.*, 64:41, July.
3. Sauer, G. C. (1952), J. Missouri M. A., 49:911, November.



A recent survey[1] indicates that over 12,000,000 people in the U.S.A yearly seek professional relief from the distressing symptoms of athlete's foot. Especially sensitive are those who make their living on their feet – all day long – day after day. *These are your patients.* They come to you in greatly increased numbers during these hot summer months when the incidence of crippling athlete's foot is at peak levels.

OCTOFEN®–True Fungicidal Action

OCTOFEN LIQUID and **POWDER** both contain effective concentrations of 8-hydroxyquinoline, *a true fungicide – death to T. mentagrophytes, arch criminals in athlete's foot.* OCTOFEN LIQUID kills the crippling fungus in 2-minutes flat, in laboratory tests. Clinical studies[2] reveal that this product is effective in over 90% of all cases tried. The most stubborn condition may respond completely in as little as a two week period. Containing moisture-absorbent silica-gel as well as the active fungicide, OCTOFEN POWDER is sound supplementary therapy.

1. MODERN MEDICINE TOPICS. 10:7, 1949
2 EXP MED & SURG., 7:37, 1949

OCTOFEN–Preferred Treatment

OCTOFEN enjoys ready acceptance from the afflicted patient who must stay on the job, on his feet, day in, day out. In most cases, no time is lost – no awkward wet dressings or messy salves needed – just generous and repeated applications of OCTOFEN LIQUID on the affected parts in the office and in the home until relieved. Furthermore, OCTOFEN is non-irritating, greaseless, non-staining, kind to the tender skin, quick drying. For adjuvant treatment and prophylaxis, OCTOFEN POWDER, silk smooth and soothing, may be dusted liberally on the feet, in the socks, for added protection. OCTOFEN POWDER helps keep the feet dry–a must in treatment; curbs foot odors too.

SAFE
SIMPLE

McKESSON &
ROBBINS, INC.,
BRIDGEPORT 9, CONN.

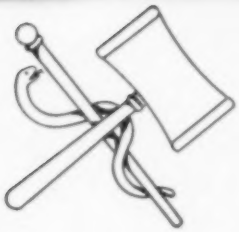
McKesson & Robbins, Inc., Dept. MT
Bridgeport 9, Conn.

Kindly send me free samples of your OCTOFEN LIQUID and OCTOFEN POWDER.

Name_____ M.D.

Address_____

City_____ Zone_____ State_____



What's Your Verdict?

Edited by Ann Picinich, Member of the Bar of New Jersey

From the curb of the sidewalk, the father of two eleven-year old girls directed them in the pushing of a stalled automobile. Shortly thereafter the children were struck by a newspaper delivery truck. The one girl sustained a cerebral concussion, a fracture of the femur and wrist, and other injuries for which the hospital and medical services amounted to $4,632.45. The other suffered a brain and eye injury for which the charges claimed were $1,797.50. They became the physician's patients.

The question arose as to the amount of medical fees that may be charged of the children. At the time of the accident, the family was on home relief, and was being maintained in commercial store premises. The parents were nomadic, uneducated, semi-skilled workers. The children likewise had virtually no formal education, secular or religious. The irresponsibility of the father was demonstrated at the trial.

"In view of all the circumstances, as a matter of public policy, the physician's fees should be reduced," argued the Special Guardian.

"My fees are reasonable for the services which I rendered. As long as they are reasonable, I am entitled to charge these patients as I would charge a 'Rockefeller'," responded the physician.

Was the physician able to collect the original amount of his fees?

THE COURT SAID: The fees must be reduced. While the physician is entitled to compensation, the financial, economic and social status of the children must be considered. He may not, as he testified upon the trial, charge these children the same fees he would charge a "Rockefeller." At that time, he also said, that statement proved to have been prophetic. Of the larger charge, $1,444.95 was disallowed and $355 disallowed from the other charge. The allowances granted to him were stated to be fair indeed, and it is so intended that they should be.

Note: At the recommendation of the Court, the physician did consent to the reductions.

Based on decision of
Supreme Court of New York

for relief of pruritus

EURAX®

(brand of crotamiton)

now in lotion as well as cream form

An outstanding advantage of EURAX in the relief of pruritus is prolonged duration of action. A single application is effective for 8 to 10 hours...will secure for your patient uninterrupted sleep throughout the night.

Additional recognized advantages of EURAX Lotion and Cream are:

- ***Prompt action***
- ***Complete relief*** in the majority of patients
- ***Effective*** in most of the itching dermatoses
- ***Nonsensitizing and nonirritating*** in virtually all cases
- ***No loss of effectiveness*** on continued use
- ***Cosmetically acceptable***

You can prescribe EURAX Lotion alone as an effective antipruritic agent, *or* as a bland antipruritic vehicle in which to incorporate other medication.

EURAX®
(brand of crotamiton):
10% Cream and Lotion.
Prescription only.

Geigy **GEIGY PHARMACEUTICALS**
Division of Geigy Chemical Corporation
220 Church Street, New York 13, N. Y.
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434

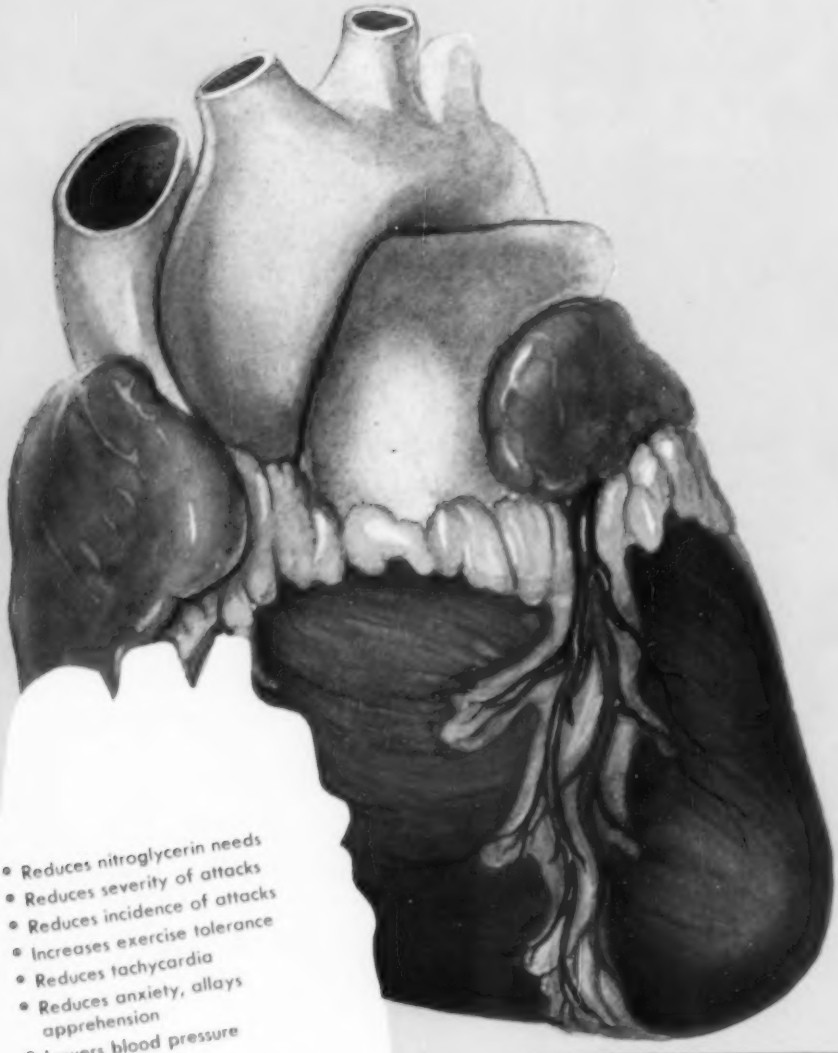
PENTOXYLON™

Supersedes

IN ANGINA PECTORIS -
STATUS ANGINOSUS

Another **Riker** *Original*

NOW...THERAPY



- Reduces nitroglycerin needs
- Reduces severity of attacks
- Reduces incidence of attacks
- Increases exercise tolerance
- Reduces tachycardia
- Reduces anxiety, allays apprehension
- Lowers blood pressure in hypertensives
- Does not lower blood pressure in normotensives
- Produces objective improvement demonstrable by EKG.

Descriptive brochure on request

IN DEPTH

in angina pectoris . . .
status anginosus

PENTOXYLON—combining the tranquilizing, stress-relieving, bradycrotic effects of Rauwiloid and the prolonged coronary vasodilating effect of pentaerythritol tetranitrate (usually abbreviated PETN)—provides a completeness of treatment heretofore unavailable to angina patients.

Therapy in depth—a wholly new principle in angina therapy—for the first time encompasses effective treatment for cause-and-effect mechanisms, which goes deeper than the superficial plane of relief afforded by simple coronary vasodilatation.

Pentoxylon is not a substitute for nitroglycerin. Continued therapy with Pentoxylon can be expected to reduce markedly or abolish nitroglycerin requirements, and greatly relieve the apprehension of the patient who lives in continuous dread of the next attack.

Each long-acting tablet of Pentoxylon contains pentaerythritol tetranitrate (PETN) 10 mg. and Rauwiloid 1 mg.

Dosage: one to two tablets q.i.d., usually at mealtime and before retiring.

Available in bottles of 100 tablets.

PENTOXYLON™

Riker LABORATORIES, INC., LOS ANGELES 48, CALIF.

In Every Field of Medicine

THE TRANQUILIZING ACTION OF

Rauwiloid®

The ORIGINAL alseroxylon fraction of Rauwolfia

Serves Better

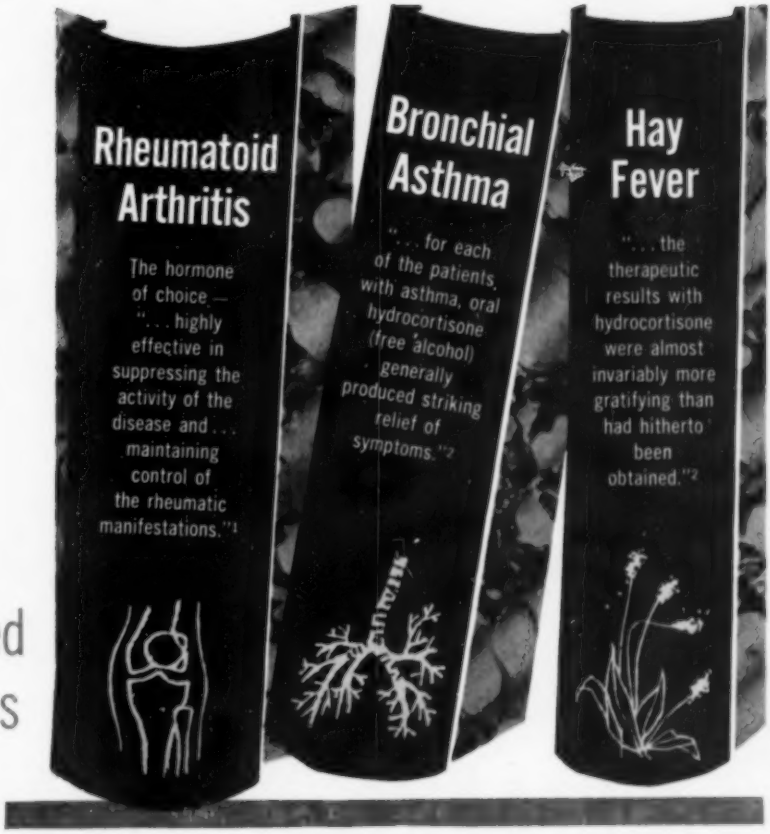
when anxiety and apprehension must be allayed—before surgery—during diagnostic work-up—during the menopause—in any tension-producing state—and in mild labile hypertension . . .

Because... Rauwiloid shows virtually no side actions—even fewer than other rauwolfia preparations—and there are no contraindications . . .

Because... Rauwiloid is simpler to use—unlike the barbiturates—somnolence no problem—not habit forming—no upward dosage adjustment needed.

So Easy, too... **merely two 2 mg. tablets at bedtime!**

Riker LABORATORIES, INC., LOS ANGELES 48, CALIF.



Triad of clinically established indications for

dramatic

Cortril

brand of hydrocortisone

tablets

the hormone that is anti-rheumatic
anti-allergic
anti-inflammatory

Supplied: scored tablets, 10 mg. and 20 mg. hydrocortisone, free alcohol

also available:

CORTRIL Topical Ointment

CORTRIL Acetate Aqueous Suspension for intra-articular injection

CORTRIL Acetate Ophthalmic Ointment

CORTRIL Acetate Ophthalmic Suspension with TERRAMYCIN® Hydrochloride

references: 1. Boland, E. W., and Headley, N. E.: J.A.M.A. 148:981, March 22, 1952. 2. Schwartz, E.: J. Allergy 25:112-119, March, 1954.

Pfizer PFIZER LABORATORIES, *Brooklyn 6, New York*
Division, Chas. Pfizer & Co., Inc.

announcing a new

ACHROMYCIN*

Tetracycline *Lederle*

Significant notes on another value found in the meaty parts of fresh oranges...

The Citrus Bioflavonoids

Continuing studies on the citrus bioflavonoids, extensively supported by Sunkist Growers over the past 18 years,* are building conclusive evidence of the values of these materials, especially to the capillary system. It is becoming increasingly apparent that the citrus bioflavonoids, particularly hesperidin, play an essential role in nutrition both in health and disease.

Research indicates the bioflavonoids strengthen the capillary walls and thus aid in the maintenance of normal capillary permeability and integrity. And they are now indicated in many disease states having, in common, impaired capillary function. These include habitual abortion[1], rheumatic fever[2], rheumatoid arthritis[3], psoriasis[4], hypertension[5], respiratory disease[6], and possibly radiation injury.

The citrus bioflavonoids, like pro-vitamin A and the newly-recognized protopectins, are found mainly in the meaty parts of oranges (the cell walls and fibrous tissues) rather than the juice. In fact, the whole peeled orange contains 10 times as much bioflavonoid (hesperidin) as the finely-strained juice alone.

The bioflavonoids are another important reason for the trend to the *fresh orange* ... fresh oranges for eating and whole fresh orange juice with a good portion of the healthful solids left in it. (For therapeutic use, the daily dietary intake of fresh oranges can be supplemented with medicinal products derived from citrus.)

Sunkist Growers
Box 2706, Terminal Annex, Los Angeles 54, Calif.

Sunkist Oranges are recognized as the finest oranges obtainable in any market...anywhere.

* Some of the earliest scientific papers on the structure, chemical and physical properties, physiological and pharmacological studies on purified bioflavonoid materials were conducted in the research laboratories of Sunkist Growers and under clinical fellowships supported in whole or in part by Sunkist.

Since the clinical importance of citrus bioflavonoids was highlighted by Nobel Laureate Szent-Györgyi in 1936, more than 600 scientific papers have been published in this field. A complete bibliography will be mailed on request.

1 ***Greenblatt, Robert B.,*** Obstetrics and Gynecology, 2:530, November 1953.
Javert, Carl T., Obstetrics and Gynecology, 3:420, April 1954.

2 ***Rinehart, J. F.,*** J. Clin. Invest., 23:941, 1944, Calif. Health, 1:163-6, 1944.

3 ***Selsman, G. J. V.,*** and S. Horoschak, Am. J. Dig. Dis., 17, 92, 1950.
Warter, P. J. et al, Delaware St. Med. J., 20:41, 1948.

4 ***Goldfarb, A. E.,*** Arch. Dermat. and Syphil., 43:536-8, 1941. Med. World (London) 63:29, 1945.

5 ***Barishaw, S. B.,*** Exptl. Med. Surg., 7, 35, 1949.
Selsman, G. J. V., and S. Horoschak, Am. J. Dig. Dis., 17, 92, 1950.

6 ***Getz, H. R.,*** Milbank Foundation, 1950.
Biskind, M. S., and Martin, Wm. C., Am. J. Dig. Dis., 21:177, July 1954.

large gastric ulcer

Fig. 3, Case 103 before therapy.

healed with

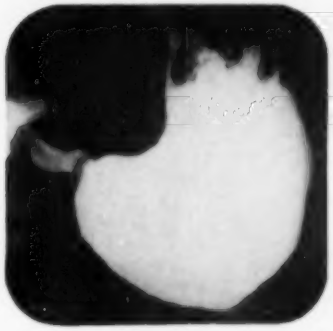


Fig. 6, Case 103 after 4 months PRANTAL therapy.
* Heineken, T. S.: Rev. Gastroenterol. **20**:829, 1953.

PRANTAL...*relieves pain*

facilitates healing • "*least* side actions"*

widest variety of dosage forms

PRANTAL® Methylsulfate, brand of diphenmethanil methylsulfate.

Schering

PRANTAL

WHEN TETRACYN THERAPY IS INDICATED

AND THE PATIENT CANNOT OR WILL NOT TAKE ORAL MEDICATION...

THINK OF

TETRACYN*

BRAND OF TETRACYCLINE HYDROCHLORIDE

INTRAMUSCULAR

FOR AN **AIH** (AFEBRILE IN HOURS) RESPONSE

NEW DOSAGE FORM

- affords prompt control in a wide range of infections
- provides a convenient route of administration for "stat" therapy
- keeps control of therapy in the hands of the physician

SUPPLIED: Vials of 100 mg.

WHEN TETRACYN THERAPY IS INDICATED...
AND TASTE IS THE CRITICAL FACTOR

TETRACYN ORAL SUSPENSION
chocolate flavored

TETRACYN PEDIATRIC DROPS
banana flavored

Roerig Rx

ETHICAL PHARMACEUTICALS FOR NEEDS BASIC TO MEDICINE
536 Lake Shore Drive, Chicago 11, Illinois

* Trademark

LETTERS TO THE EDITOR

This department is offered as an Open Forum for the discussion of topical medical issues. All letters must be signed. However, to protect the identity of writers, who are invited to comment on controversial subjects, names will be omitted when requested.

Suggestion for Piercing Ears

Perhaps you would like to accept this simple suggestion for piercing ears. As you are no doubt aware, more women are now using the type of earring which requires that the ear lobes be pierced.

The hub of a number 19 needle, 1½ inches long, should be removed, preferably with a dental rotary disk. The beveled point is then filled in with a bit of solder, which is filed down smooth.

After proper sterilization of the needle and ear lobe, the needle is grasped with a needle holder at right angles and with a firm quick motion, pushed through the ear lobe from front to back, to a point where the needle protrudes from both sides of the lobe. The tip of the wire loop of the earring is then inserted into the open back end of the needle and both it and the needle are pushed through the ear lobe completely. Thus the earring is in place with one motion.

R. L. Kaufman, M.D.
Studio City, Calif.

Safe

New Pediatric Sedative

- NO BARBITURATES
- NO BROMIDES
- NO NARCOTICS

LULLAMIN Drops

NEW-LULLAMIN DROPS

Non-Barbiturate Sedative For Pediatric Use

To Combat Irritability and Sleeplessness in Infants and Children

SAFE Lullamin Drops are free of bromides, barbiturates and narcotics—are not habit forming. Clinical experience with children reveals no undesirable side effects.

EFFECTIVE Clinical Tests show Lullamin Drops effective in establishing better sleep habits and in combating daytime irritability and restlessness.

NEW Lullamin Drops are new . . . and specially compounded and flavored to appeal to children of all ages. Ethically promoted and available only on prescription.

Write for samples and literature today.

REED AND CARNRICK

JERSEY CITY 4, N. J.

FORMULA: Each cc. contains
Diethenylthiuram Hydrochloride (NABAC) 16.0 mg.
in a pleasantly flavored syrup containing 0.2% alcohol

DOSAGE:

Under 1 yr.	0.2-0.4 cc. (5-10 drops)
1 to 5 yrs.	0.6 cc. (15 drops)
6 to 12 yrs.	0.8 cc. (20 drops)
Over 12 yrs.	1.2 cc. (30 drops)

FOR DAYTIME SEDATION:
As indicated or by clock.

TO AID IN INDUCING SLEEP:
One dose 15-30 minutes before bedtime. May be repeated if necessary.

ISSUED: 25 cc. bottles with calibrated dropper.

Rx LULLamin to LULL the restless child

MODERN MEDICINALS

These brief resumes of essential information on the newer medicinals, which are not yet listed in the various reference books, can be pasted on file cards and a record kept. This file can be kept by the physician for ready reference.

Achromycin Ointment, Lederle Laboratories, Pearl River, N. Y. Contains 3% of tetracycline hydrochloride in a petrolatum-wool fat base for topical application. Indicated for the treatment of superficial infections of the skin and for the prevention of infection in wounds or abrasions and after surgery. **Dose:** For topical application. **Sup:** In 1/2 and 1 oz. tubes.

Bacimycin Ophthalmic Ointment, Walker Laboratories, Mount Vernon, N. Y. Each gram contains: Bacitracin, 500 units and Neomycin sulfate, 5 mg. For use in treatment of superficial infections of the eye caused by organisms sensitive to either Bacitracin or Neomycin. Applied topically as required in: acute and chronic conjunctivitis, corneal ulcer, blepharitis, infections of lacrimal sac, and secondary infections of the eye. **Dose:** Apply to margin of lower lid once or twice daily for styes and blepharitis. Gentle message of the lids helps to distribute the ointment. Mild infections usually respond within 48 hours. **Sup:** In 1/8 ounce tube with applicator tip.

—Continued on page 50a

Upjohn

oral
estrogen-progesterone
effective in
menstrual disturbances:

Cyclogesterin
TRADEMARK, REG. U. S. PAT. OFF.
tablets

Each scored tablet contains:

Estrogenic Substances* .. 1 mg.
(10,000 I.U.)

Progesterone .....30 mg.

**Naturally-occurring equine estrogens (consisting primarily of estrone, with small amounts of equilin and equilenin, and possible traces of estradiol) physiologically equivalent to 1 mg. of estrone.*

Available in bottles of 15 tablets.

The Upjohn Company, Kalamazoo, Michigan

It Has What it Takes For CHEMICAL DISINFECTION OF SHARP SURGICAL INSTRUMENTS

You can rely on

B-P FORMALDEHYDE GERMICIDE to...

contains HEXACHLOROPHENE (G-11*)

KILL vegetative pathogens and spore formers within 5 minutes.*

KILL the spores themselves within 3 hours.*

KILL tubercle bacilli within 5 minutes.*

*Trademark of Sindar Corp.

SUGGESTION! B-P CONTAINERS are all especially designed for convenience in conjunction with the use of B-P GERMICIDE.

Used as directed, it will not injure keen cutting edges, points of hypodermic and suture needles, scissors and other 'sharps' . . . nor rust, corrode or otherwise damage metallic instruments.

IT'S THE ECONOMICAL ANSWER towards keeping annual costs for solutions and instrument replacement and repairs at a minimum. May be used repeatedly if kept undiluted and free of foreign matter.

**Comparative chart sent on request*

Ask your dealer

PARKER, WHITE & HEYL, INC.
Danbury, Connecticut, U.S.A.

in the treatment of Hypertension

Effectively

mannitol hexanitrate exerts vasodilator action and persistent relaxation of smooth muscle

New and Nonofficial Remedies: A.M.A. Council on Pharmacy and Chemistry, J. B. Lippincott, p. 243, 1953.

Safely

fewer side effects with mannitol hexanitrate . . . greater percentage fall in blood pressure

N. Y. Physician 31:20 (Jan.) 1949.

Economically

combined medication that provides simultaneously:

vasodilatation (mannitol hexanitrate)
diuresis (theophylline)
sedation (phenobarbital)
capillary protection (ascorbic acid + rutin)

Semhyten®

BRINGS THE PRESSURE DOWN SLOWLY  **SAFELY**

Complete Medication for the Hypertensive

Each Semhyten Capsule contains:		Phenobarbital	¼ gr. (15 mg.)
Mannitol Hexanitrate	½ gr. (30 mg.)	Rutin	10 mg.
Theophylline	1½ gr. (0.1 Gm.)	Ascorbic Acid	15 mg.

Supplied: In bottles of 100, 500 and 1000 pink-top capsules.

The S. E. MASSENGILL Company • Bristol, Tennessee

.....often with the first capsule

The typical rapid response to DACTIL with Phenobarbital is seen at the dose level of 50 mg. and generally relief is maintained satisfactorily by prescribing q.i.d.

new drug action

Unlike "antispasmodics" which tend to produce an inert, paralyzed viscus, DACTIL is *eutonic*—that is, it restores and maintains normal visceral tonus. There are apparently no contraindications to the use of DACTIL except glaucoma. In clinical experimentation, doses much higher than those recommended have been administered without side effects.

prompt

action at the site of visceral pain gives unusually rapid relief.

prolonged

control of spasm gives relief up to four hours.

DACTIL QID

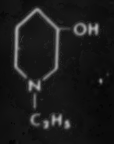
for gastroduodenal and biliary spasm, cardiospasm, pylorospasm, spasm of biliary sphincter, biliary dyskinesia, gastric neurosis and irritability, and as adjunctive therapy in selected inflammatory hypermotility states. A specific for upper gastrointestinal pain-spasm, DACTIL is not intended for use in peptic ulcer.

two forms

DACTIL with Phenobarbital in bottles of 50 capsules. There are 50 mg. of DACTIL and 16 mg. of phenobarbital (warning: may be habit-forming) in each capsule.

DACTIL (plain) in bottles of 50 capsules. There are 50 mg. of DACTIL in each capsule.

DACTIL, first of the Lakeside piperidol derivatives, is the *only* brand of N-ethyl-3-piperidyl diphenylacetate HCl.



Lakeside Laboratories, INC. • MILWAUKEE 1, WISCONSIN • PIONEERS IN PIPERIDOLS

—Continued from page 44a

Blastomycin, Parke, Davis & Co., Detroit 32, Mich. A sterile filtrate from the culture of the mycelial phase of Blastomyces dermatitidis grown on liquid synthetic medium. For aids in the diagnosis of North American Blastomycosis (Gilchrist's Disease) and the differentiation from other infections. **Dose:** Recommended test dosage is prepared by diluting the vial of concentrated Blastomycin (.01 cc.) with 1.0 cc. of diluent injected intracutaneously into the forearm of the patient and reaction is read 24-48 hours later. **Sup:** As two 1-cc. vials, one containing .01 cc. of concentrated Blastomycin and the other containing 1 cc. of diluent.

Cholografin, E. R. Squibb & Sons, New York 22, N. Y. A water solution of a crystalline substance which is excreted relatively preferentially by the liver. Designed to make x-ray visualization of the bile ducts possible in most cases where such examination has heretofore been difficult or unsuccessful. Its excretion is rapid enough and the concentration sufficient to give a high degree of visibility under x-rays. It is administered by intravenous injection. **Dose:** As determined by physician. **Sup:** A 20 per cent sterile aqueous solution in 20 cc. ampuls.

Clusintrin, Ayerst Laboratories, New York 16, N. Y. Each capsule provides: Vitamin B_{12} with intrinsic factor concentrate, 0.33 U.S.P. Units; vitamin B_{12} U.S.P. (crystalline), 25.0 mcg.; folic acid U.S.P., 1.67 mg.; vitamin C (ascorbic acid), 50.0 mg., thiamine mononitrate (B_1), 3.34 mg., riboflavin (B_2), 3.34 mg., nicotinamide, 50.0 mg., ferrous sulfate exsic., 200.0 mg. Used in treatment of anemias. **Dose:** As determined by physician. **Sup:** In bottles of 100 and 1,000 capsules.

—Continued on page 54a

invitation to asthma?

not necessarily . . .

Tedral, taken at the first sign of attack, often forestalls severe symptoms.

relief in minutes . . . Tedral brings symptomatic relief in a matter of minutes. Breathing becomes easier as Tedral relaxes smooth muscle, reduces tissue edema, provides mild sedation.

for 4 full hours . . . Tedral maintains more normal respiration for a sustained period—not just a momentary pause in the attack.

Tedral provides:

Theophylline	2 gr.
Ephedrine HCl	⅜ gr.
Phenobarbital	⅛ gr.

in boxes of 24, 120 and 1000 tablets

Tedral®

WARNER-CHILCOTT
Laboratories NEW YORK

when "The proof of the pudding is in the . . ." **tasting**

Mytinic® liquid

Palate-pleasing formulation

for comprehensive treatment of "secondary" anemia.

Each teaspoonful (5 cc.) provides:

Ferric ammonium citrate	110 mg.
Thiamine hydrochloride	1.7 mg.
Riboflavin	0.7 mg.
Niacinamide	17 mg.
Liver fraction 1, N.F.	170 mg.
Vitamin B_{12}	3 mcg.

Supplied in bottles of 12 fl. oz.

Bristol
LABORATORIES INC.
SYRACUSE, NEW YORK

for

PROMPT RELIEF

and

PROLONGED EFFECT

in

BRONCHIAL ASTHMA

SUS-PHRINE

AQUEOUS EPINEPHRINE SUSPENSION 1-200

Brewer

for subcutaneous injection

supplied in

Increasingly favored as evidenced in—

RECENT CLINICAL REPORTS

. . . in 173 patients . . . all but three stated emphatically that they prefer the new product (Sus-Phrine) to epinephrine in oil . . . Greatest individual acceptances of the new injection has been by children.

Unger, A. H. and Unger, L. Annals of Allergy. 10:128,1952.

This free flowing aqueous suspension (Sus-Phrine) represents a distinct departure from previously available heavy, viscous preparations . . . it possesses marked advantages chiefly because of the small quantity required . . . and ease of administration. Since the material permits use of a short, small needle, it diminishes the psychological fear reaction which the sight of a long, large needle elicits in youngsters and in nervous apprehensive adults.

Jenkins, M. C. Jl. National Med. Assoc. 45:120,1953.

Epinephrine suspended in oil has the disadvantages that because of delayed action it cannot be used when prompt effect is desired as in acute asthmatic attack, and it must be given intramuscularly making self-administration difficult. Aqueous suspensions have a prompt, as well as a prolonged action, and may be self-administered subcutaneously as readily as epinephrine hydrochloride solution.

Naterman, H. L. The Journ. of Allergy. 24:60,1953.

Brewer EST. 1852

For complete reprints of above and sample, send your Rx blank marked *USIM*

BREWER & COMPANY, INC. WORCESTER 8, MASSACHUSETTS U.S.A.

—Continued from page 50a

Coricidin Syrup, Schering Corp., Bloomfield, N. J. Each teaspoonful (5 cc.) contains dihydrocodeinone bitartrate 1.67 mg.; Chlor-Trimeton maleate 2.0 mg.; sodium salicylate 225.0 mg.; sodium citrate 120.0 mg.; caffeine 30.0 mg.; and glyceryl guaiacolate 30.0 mg., with less than 1 per cent alcohol. Relieves coughs of allergic origin as well as those due to colds; also eases pain, relieves congestion, and soothes irritated throat membranes. **Dose:** Adults—1 teaspoonful every 3 to 4 hours, but not to exceed 4 doses daily. Children 6-12 years, 1/2 the adult dose and under 6 years, a physician should be consulted. **Sup:** In bottles of 4 and 16 oz.

Cortef Sterile Solution (Intravenous) The Upjohn Company, Kalamazoo, Mich. Each 20 cc. contains: Hydrocortisone 100 mg., alcohol 50%, and water for injection q.s. Used to stabilize blood pressure and plasma colume and to counteract severe allergic manifestations. **Dose:** Since it contains 50% alcohol, **must** be diluted before administering intravenously. The contents of one 20 cc. ampule is added to 500 to 1000 cc. of isotonic sodium chloride solution, 5% or 10% dextrose solution, or 5% gelatin solution (Plazmoid). The resultant solutions are infused over a period of two to ten hours and may be repeated as indicated in individual cases. **Sup:** In 20 cc. ampules in boxes of 1, 5, and 25.

Dexamyl Spansules (No. 1 & No. 2), Smith, Kline & French Laboratories, Phila., Pa. Balanced combination of Dexedrine and amobarbital. Each capsule contains dextro-amphetamine

—Continued on page 62a

puts the
patient
in the mood
for recovery

AMPHEDASE*

KAPSEALS®

new antidepressant
and nutritional adjunct

AMPHEDASE supplies support needed to help speed recovery and secure patient cooperation. AMPHEDASE is especially helpful in patients with asthenia and depression and during convalescence. It is valuable in geriatric therapy, in obesity, and in patients with faulty nutrition and digestion.

Detailed information on AMPHEDASE will be mailed on request.

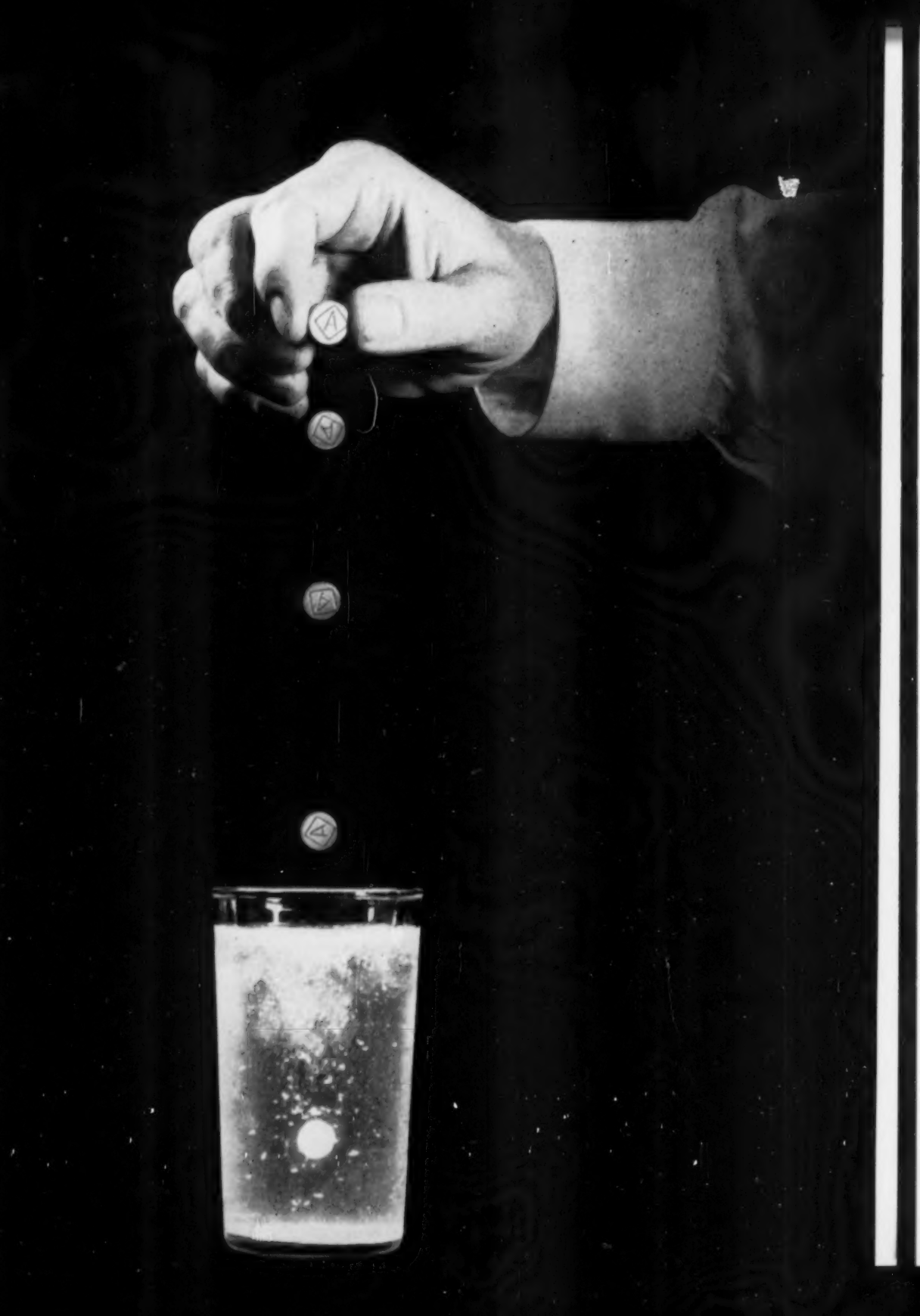
Each AMPHEDASE Kapseal contains

d-amphetamine sulfate	2.5 mg.
Nicotinamide	25.0 mg.
Thiamine hydrochloride	5.0 mg.
Ascorbic acid	50.0 mg.
Teka-Dietase®	300.0 mg.

Supplied in bottles of 100 and 250 Kapseals.

Prescription

Parke, Davis & Company
DETROIT, MICHIGAN



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filmtab* **Erythrocin®**

starts to dissolve

NEW filmtab*

...for faster drug absorption

Now, *there's no delayed action from an enteric coating.* The new tissue-thin *Filmtab* coating (marketed only by Abbott) starts to disintegrate within 30 seconds after your patient swallows it—makes the antibiotic available for immediate absorption.

NEW filmtab*

...for earlier blood levels

Because of the swift absorption, your patient gets high blood levels of ERYTHROCIN (Erythromycin Stearate, Abbott) in *less than 2 hours*—instead of 4-6 hours as before. Peak concentration is reached within 4 hours, with significant concentrations lasting for 8 hours.

NEW filmtab*

...for your patients

It's easy on them. Compared with most other widely-used antibiotics, *Filmtab* ERYTHROCIN is *less likely to alter normal intestinal flora.* Prescribe *Filmtab* ERYTHROCIN for all susceptible coccic infections—especially when the organism is resistant to other antibiotics. Bottles of 25, 100 (100 and 200 mg.).

Abbott

**TM for Abbott's film sealed tablets, pat. applied for*

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Rauwolfia serpentina

AS SOLE THERAPY

For every patient with mild, moderate, or labile hypertension

In addition to dropping the blood pressure moderately, Rauwolfia serpentina produces marked, often dramatic, subjective improvement. It relaxes the emotionally tense patient, gradually inducing a welcome state of calm tranquility.

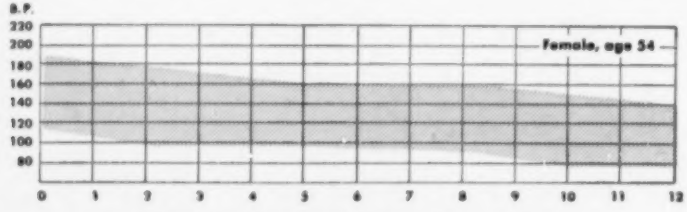
Headache, tinnitus and dizziness are greatly relieved, and the discomfort of palpitation is usually overcome. Hence, it usually suffices as sole medication in mild, moderate and labile hypertension, especially when the emotional element is a prominent factor

Rautensin

Purified Rauwolfia Serpentina Alkaloids

Rautensin produces the typical hypotensive, sedative, and bradycrotic effects characteristic of this important new drug. Each tablet contains 2 mg. of the alseroxylon fraction, a highly purified alkaloidal extract entirely free of inert material. The alseroxylon fraction is tested in dogs for its ability to lower blood pressure, produce sedation, slow the pulse.

The initial dose of Rautensin is 2 tablets (4 mg.) daily for 30 days. After the full effect is established, the intake is dropped to 1 tablet (2 mg.) daily. Side actions are rare; there are no known contraindications.



Weeks of therapy. Rautensin, 4 mg. daily. Marked subjective improvement.

SMITH-DORSEY · Lincoln, Nebraska *A Division of* THE WANDER COMPANY

Rauwolfia serpentina

IN COMBINATION

For the patient with chronic, severe, or fixed hypertension

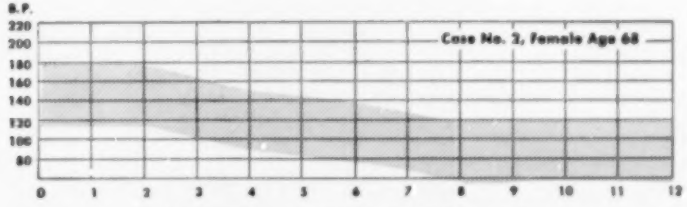
Most cardiologists today assert that in severe or fixed essential hypertension, combination therapy is more efficacious than any single drug alone. The combination of Rauwolfia serpentina and Veratrum viride is especially favored since it results in an additive, if not a synergistic, effect. In this combination, the dosage requirements of veratrum are significantly reduced, hence the incidence of side effects is greatly minimized.

Rauvera

Rauwolfia Serpentina and Veratrum Viride Alkaloids

Each Rauvera tablet combines 1 mg. of the alseroxylon fraction of Rauwolfia serpentina and 3 mg. of alkavervir, a highly purified alkaloidal extract of Veratrum viride. The potent hypotensive action of veratrum is thus superimposed on the desirable influence of Rauwolfia. Rauvera leads to a substantial reduction in blood pressure and marked subjective improvement, hence produces excellent results in chronic, severe, and fixed essential hypertension.

The average dose of Rauvera is 1 tablet 3 times daily, after meals, at intervals of no less than 4 hours.



Weeks of therapy. Rauvera, 4 tablets daily. Note blood pressure response.

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Reducing Diets • Diabetic Diets • Geriatric Diets • Postoperative Diets

when you

STOP

normal nutrition

G

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Peptic Ulcer Diets • Low Sodium Diets • Hepatic Disease Diets • Rheumatic Fever Diets

Two "Clusivol" capsules (average daily dosage) provide:

Vitamin A (synthetic)	25,000	U.S.P. Units	Biotin	0.1	mg.
Vitamin D (irradiated ergosterol)	2,000	U.S.P. Units	d-Methionine	20.0	mg.
Vitamin C (ascorbic acid)	150.0	mg.	Cobalt—from cobalt sulfate	0.1	mg.
Thiamine mononitrate (B_1)	10.0	mg.	Copper—from copper sulfate	1.0	mg.
Riboflavin (B_2)	5.0	mg.	Fluorine—from calcium fluoride	0.025	mg.
Pyridoxine HCl (B_6)	1.0	mg.	Iron—from 4 gr. ferrous sulfate exsic.	76.2	mg.
Panthenol, equivalent to of calcium pantothenate	10.0	mg.	Calcium—from dicalcium phosphate	165.0	mg.
			Manganese—from manganous sulfate	1.0	mg.
Vitamin B_{12} U.S.P. (crystalline)	2.0	mcg.	Iodine—from potassium iodide	0.15	mg.
Folic acid U.S.P.	2.0	mg.	Molybdenum—from sodium molybdate	0.2	mg.
Nicotinamide	100.0	mg.	Potassium—from potassium sulfate	5.0	mg.
Vitamin E (as mixed tocopherols natural)	10.0	mg.	Zinc—from zinc sulfate	1.2	mg.
			Magnesium—from magnesium sulfate	6.0	mg.
Inositol	30.0	mg.	Phosphorus—from dicalcium phosphate	127.4	mg.
Choline—from choline bitartrate	30.0	mg.			

No. 293—Supplied in bottles of 100 and 1,000.

Ayerst Laboratories • New York, N. Y. • Montreal, Canada

Ayerst

IVE

"CLUSIVOL"®

Ideal multiple-vitamin preparation for dietary supplementation

—Continued from page 54a

sulfate, 10 mg., and amobarbital, 1 gr. For wide use in everyday practice to provide sustained relief from mental and emotional distress. Also useful in weight reduction to relieve the mental and emotional distress that is often the cause of overeating and are a valuable adjunct in treatment of alcoholism. **Dose:** One spansule or two, if required — taken on arising or at breakfast. **Sup:** In 2 dosage strengths — No. 1 (Dexedrine sulfate 10 mg. and amobarbital, 1 gr.) and No. 2 (Dexedrine sulfate, 15 mg. and amobarbital, 1½ gr.) both in bottles of 30.

Hydrocortone Lotion, Sharp & Dohme, Philadelphia, Pa. Contains hydrocortisone 1% and is designed for topical therapy. **Dose:** A small quantity of the lotion is applied to the affected areas 2 to 3 times daily. **Sup:** In 15 cc. (½ fl. oz.) plastic bottles.

Infusion Concentrate Hydrocortone, Sharp & Dohme, Division of Merck & Co., Philadelphia, Pa. New development in adreno-steroid therapy. May be life saving in the intravenous administration of hydrocortisone where rapid effect is essential, particularly in cases involving surgical shock, transfusion reactions, severe drug reactions, status asthmaticus, acute allergic emergencies, Addisonian Crisis, Waterhouse-Friderichsen Syndome, and hepatic cirrhosis. **Dose:** As determined by physician. **Sup:** In 20 cc. ampuls containing 100 mg. of hydrocortisone.

Ketodase, Warner-Chilcott Laboratories, New York 11, N. Y. Each cc. of Ketodase contains 5,000 Fishman units of beef liver betaglucoronidase buffered in acetate to pH 5.0. Used in the determination of the following

—Continued on page 62a

accuracy every time

Clinitest®

BRAND

for detection of urine-sugar

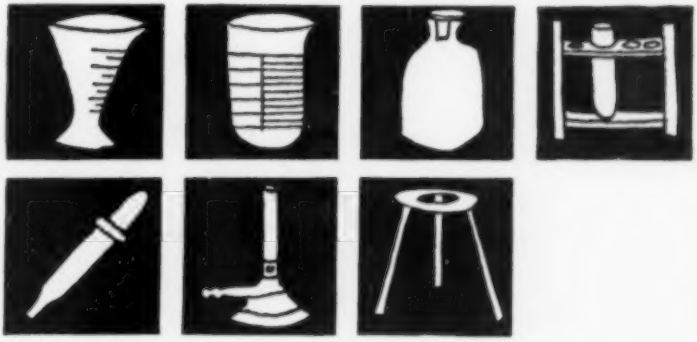
"Both *Clinitest* and Benedict's qualitative test are completely accurate when properly performed."[1]

but

"...there are fewer sources of error with *Clinitest*."[1]

and

"The routine Benedict test...is seldom well performed because of the difficulties of accurate measurement of reagent and urine and because of the practical difficulties of uniform heating; the much simpler and more readily standardized tablet test is to be preferred..."[2]



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2. Gray, C. H., and Millar, H. R.: Brit. M. J. *4824*:1361 (June 20) 1953.

Ames Diagnostics–Adjuncts in clinical management

AMES

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Whether for office, examining room or to take on outside calls there is a scientifically accurate, easy to use, easy to carry Baumanometer to serve you. Thousands of physicians today find the STANDBY ideal for office use. You will, too.

Simply place the STANDBY next to your desk, or chair, or examining table. It occupies only 1 square foot of floor space and is always instantly ready for use—never in the way.

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STANDARD FOR BLOODPRESSURE

The STANDBY Model is available either with the bandage-type cuff, or with The New Cleanable Air-Lok® Cuff. Your surgical instrument dealer will be glad to send you one for your free trial.

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Since 1916 Originator and Maker of Bloodpressure Apparatus Exclusively

Biochemical PROOF

of higher calcium levels with Calcisalin®

the new prenatal supplement

In a recent clinical test* which included biochemical determinations of ionic calcium, four groups of pregnant patients were studied. Here are the results after a four-week period, compared with the initial serological values.

PER CENT CHANGE IN CALCULATED IONIC CALCIUM

GROUP	CHANGE
Control. No medication	Minus 6.0%
No neuromuscular symptoms. Medication, CALCISALIN	PLUS 12.5%
Neuromuscular symptoms. Medication, dicalcium phosphate supplement	Minus 0.9%
Neuromuscular symptoms. Medication, CALCISALIN	PLUS 18.0%

*From *Calcium Metabolism in Pregnancy*, Gross, Wager and Loving, Bulletin Margaret Hague Maternity Hospital, Dec. 1953.

To help you make your own evaluation of CALCISALIN we will send samples and literature on request.

The HARROWER Laboratory INC.

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FACTS...

ABOUT CALCIUM AND PHOSPHORUS IN PRENATAL DIETARY SUPPLEMENTS

- Pregnancy depletes calcium, and the principal purpose of a prenatal supplement is to replenish calcium in the maternal pool.
- There is an antipathy between calcium and phosphorus which causes depression of calcium levels when phosphorus is administered *with* calcium.
- Most prenatal supplements, excepting Calcisalin, use dicalcium *phosphate* as a calcium source.
- Calcisalin omits phosphorus through the use of calcium *lactate*, and also includes aluminum hydroxide gel to take up excess *dietary* phosphorus.
- The proven result is that Calcisalin builds ionic calcium more effectively than supplements which employ a phosphorus component.
- The medical literature points more and more strongly toward calcium *lactate* as the calcium salt of choice in prenatal nutrition. In Calcisalin, calcium lactate and aluminum hydroxide gel are combined with iron and required vitamins.

RHINALGAN®

NASAL DECONGESTANT

Uniformly *Safe!* FOR INFANTS • CHILDREN ADULTS AND AGED

DOES **NOT** CONTAIN ANY ANTIBIOTIC

Does not affect
BLOODPRESSURE
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ENTIRELY Safe! in
CARDIAC–DIABETIC
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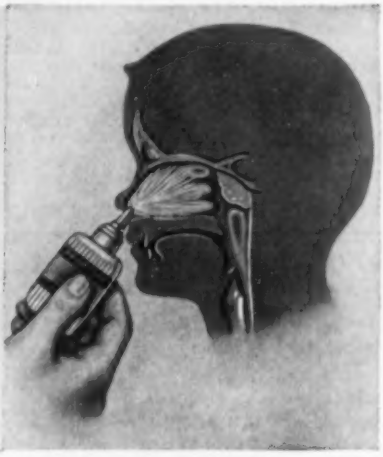
COMPLETELY FREE OF SIDE-EFFECTS... no cumulative action...no overdosage problem...non-toxic.



For *Safety!* USE RHINALGAN

NOW Modified Formula assures *PLEASANT, PALATABLE TASTE!*

FORMULA: Desoxyephedrine 0.22%; Antipyrine 0.28% in an isotonic aqueous solution with 0.02% Laurylamine Saccharinate.

Available on YOUR prescription only!

Reference to RHINALGAN:

1. Van Alyea, O. E., and Donnelly, W. A.: E.E.N.&T. Monthly, 31, Nov. 1952.
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6. Browd, Victor L.: Rehabilitation of Hearing, 1950.
7. Kugelmass, I. Newton: Handbook of the Common Acute Infectious Diseases, 1949.

NEW O TOS-MO-SAN—A specific in Suppurative Ear Infections (Acute or Chronic).

AURALGAN—After 40 years STILL the analgesic and decongestant.

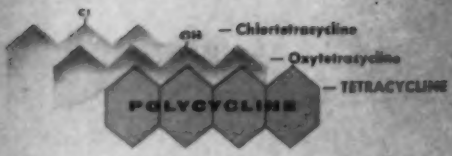
RESTALGAN Liquid—For symptomatic relief in: Rheumatoid, Pruritus, Perineal Suffering

DOHO CHEMICAL CORP., 100 Varick Street, New York 13, N. Y.

Thoroughbreds are born, not made—

FROM A PRINT "HONORS EVEN" BY EDWIN MEGARGEE. NEW YORK. PUBLISHED & COPYRIGHTED 1943 BY FRANK J. LOWE.

POLYCYCLINE *is the* ONLY *tetracycline produced directly by fermentation from a new species of Streptomyces isolated by Bristol Laboratories . . rather than by the chemical modification of older antibiotics.*



The most modern
Broad-Spectrum Antibiotic

POLYCYCLINE

TRADE MARK

(TETRACYCLINE *Bristol*)

- the only tetracycline produced directly by fermentation from a new species of Streptomyces isolated by Bristol Laboratories... rather than by the chemical modification of older broad-spectrum antibiotics.
- ***effective in broad range***
  against gram-positive and gram-negative organisms.
- ***less toxic***
  (lower incidence of side reactions)
  than older broad-spectrum antibiotics.
- ***more soluble***
  than chlortetracycline (quicker absorption, wider diffusion).
- ***more stable in solution***
  than chlortetracycline or oxytetracycline
  (higher, more sustained, blood levels).

Now available as

POLYCYCLINE SUSPENSION '250'

(TETRACYCLINE *Bristol*)

—the ONLY oral suspension of tetracycline that is **ready-to-use.** Requires no reconstitution, no addition of diluent, **no refrigeration**—stable at room temperature for 18 months. Has appealing "crushed-fruit" flavor. Supplied in bottles of 30 cc., in concentration of 250 mg. per 5 cc.

Also available as

POLYCYCLINE CAPSULES

(TETRACYCLINE *Bristol*)

— 100 mg., bottles of 25 and 100.
— 250 mg., bottles of 16 and 100.

Dosage:
average adult,
1 gram daily, divided doses;
children in proportion
to body weight.

✳ MORE THAN 400 EGGS

. . . would be required to equal the 25 mg. thiamine content of a single capsule of "BEMINAL" FORTE with VITAMIN C, which also contains therapeutic amounts of other essential B factors and ascorbic acid as follows:

Thiamine mononitrate (B_1) ..... 25.0 mg.

equivalent to more than 400 eggs

Riboflavin (B_2) ..... 12.5 mg.

equivalent to at least 8 slices of liver

Nicotinamide ..... 100.0 mg.

equivalent to more than 10 loaves of bread

Pyridoxine HCl (B_6) ..... 1.0 mg.

equivalent to about 14 servings of spinach

Calc. pantothenate ..... 10.0 mg.

equivalent to almost 4 quarts of milk

Vitamin C (ascorbic acid) ..... 100.0 mg.

equivalent to more than 15 apples

"BEMINAL"® FORTE with VITAMIN C

Ayerst

Recommended whenever high B and C levels are required and particularly pre- and postoperatively. Suggested dosage: 1 to 3 capsules daily, or more as required.

No. 817—supplied in bottles of 100 and 1,000

5427

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—Continued from page 62a

common urinary steriods: hydroxy-corticosteroids, ketosteroids, pregnanediol, estrogens, and corticoid conjugates in the human blood. **Sup:** Solution is available in individually packed 50 cc. bottles containing 250,000 units, and 200 cc. bottles of 1,000,000 units. Then stored at five degrees C., Ketodase is stable indefinitely.

Neo-Cortef Ointment, 0.5%, The Upjohn Company, Kalamazoo, Mich. Bland, non-irritating ointment containing hydrocortisone acetate and neomycin sulfate. Each gram contains: Hydrocortisone Acetate 5.0 mg (.5%) Neomycin Sulfate 5.0 mg., Methylparaben 0.2 mg., and Butyl-p-hydroxybenzoate 1.8 mg. Indicated in the treatment of allergic, atopic and seborrheic dermatitis, pruruitus ani and vulvae, and neurodermatitis. **Dose:** A small amount is rubbed gently into the involved area, 1 to 3 times daily, with frequency of application reduced as improvement is noted. **Sup:** In 5 Gm. and 20 Gm. tubes.

Orexin Tablets, The Stuart Company, Pasadena 4, California. Each tablet contains B_{12} (U.S.P. crystalline) 25 mcgm., B_6 (pyridoxine Hcl. 5 mgm.) B_1 (thiamine mononitrate) 10 mgm., plus tableting ingredients and flavoring. **Dose:** One tablet daily. **Sup:** In bottles of 30 and 100.

Polycycline Suspension '250', Bristol Laboratories, Syracuse, N. Y. A broad spectrum antibiotic in stable liquid form for oral use. Indicated for the treatment of pneumonia, bronchitis, and other respiratory infections; genito-urinary infections; meningitis; bacillary dysentery, venereal infections, and certain virus infections. **Dose:** As determined by physician.

—Continued on page 72a

BASIC IN ALL GRADES OF ESSENTIAL HYPERTENSION

Crystoserpine

CRYSTALLINE RESERPINE, DORSEY

now regarded as the chief active principle of Rauwolfia Serpentina*

Increasing experience continues to show that Rauwolfia serpentina is as basic in essential hypertension as digitalis is in congestive heart failure. Furthermore, recent evidence* demonstrates that reserpine possesses the unique antihypertensive, sedative, and bradycrotic properties characteristic of this unusual drug. On the basis of this study, reserpine is regarded by these workers as the chief active principle of Rauwolfia serpentina.

Crystoserpine—reserpine, Dorsey—is valuable in all grades of essential hypertension. In the milder forms and in labile hypertension, it usually suffices alone. In the more severe forms, it reduces the amounts required of more potent antihypertensive agents.

In addition to lowering blood pressure by central action, Crystoserpine induces a state of calm tranquility. Emotional tension is eased, the outlook improved.

There are no known contraindications to Crystoserpine. Dose, 0.25 mg. to 1.0 mg. daily. Supplied in 0.25 mg. scored tablets.

* Wilkins, R. W.; Judson, W. E.; Stone, R. W.; Hollander, William; Huckabee, W. E., and Friedman, I. H.: Reserpine in the Treatment of Hypertension: A Note on the Relative Dosage and Effects, New England J. Med. 250:477 (March 18) 1954.

SMITH-DORSEY • Lincoln, Nebraska *A Division of* THE WANDER COMPANY

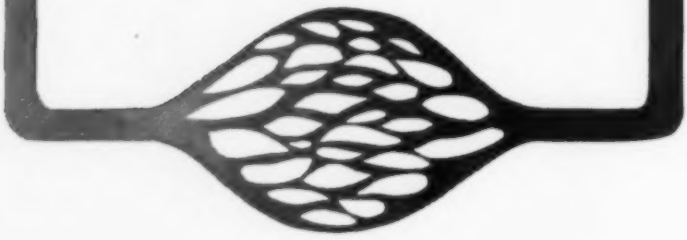
you can duplicate these results in control of bleeding . . .

Conclusions from a 1954 report on KOAGAMIN in the American Journal of Surgery

rapid	acts promptly — usually with 1 or 2 injections
safe	no untoward effects in over 11 years' use
prophylactically	facilitates surgical procedures tends to reduce blood loss
therapeutically	particularly valuable in general oozing fully compatible with vitamin K
saves blood	often obviates use of transfusions

Joseph, M.: Am. J. Surg. *87*:905, 1954

KOAGAMIN® *parenteral hemostat*



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FOR ALL usual topical bacterial infections

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Polymyxin B—Bacitracin—Neomycin

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'Aerosporin'®
(Polymyxin B) Sulfate*
for *Ps. aeruginosa* and other gram-negative bacilli,

Bacitracin
for *Streptococci, Staphylococci*
and other gram-positive organisms,

Neomycin
for *Pr. vulgaris* and other organisms,
both gram-positive and gram-negative,

in a special petrolatum base.

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—Continued from page 68a

Sup: In 30 cc. bottles. Each teaspoonful (5 cc.) providing 250 mg. of Polycyline.

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Rectalgan Aerosol, Mallon Chemical Corp., New York 13, N. Y. Contains 4 oz. Rectalgan and 7 oz. inert propellant which evaporates upon release. For relief of perineal pain in

—Concluded on page 80a

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Reserpine
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VERALBA*
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safer, two-way
hypertension
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THORAZINE*

"has a powerful selective effect against nausea and vomiting and is effective whether given orally or intramuscularly."[1]

S.K.F.'s remarkable new drug, 'THORAZINE', has demonstrated clinical effectiveness in relieving nausea and vomiting due to various causes:

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1. Friend, D.G., and Cummins, J.F.: J.A.M.A. *153*:480 (Oct. 3) 1953.

Further information available on request.

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*Trademark for chlorpromazine hydrochloride, S.K.F.
Chemically it is 10-(3-dimethylaminopropyl)-2-chlorphenothiazine hydrochloride.

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...types resistant to other therapy—where nerve root inflammation is not caused by mechanical pressure[1]

COMPLETE RELIEF OF PAIN
in 80.7% of patients...
52.9% in 5 days[1]

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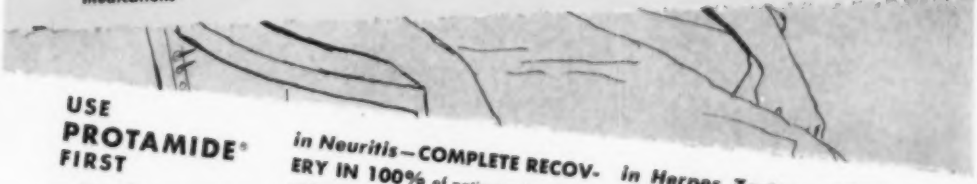
...even cases unresponsive to a wide variety of other medications[2]

GOOD TO EXCELLENT RESULTS
in 82.7% of patients in two studies...
70.4% with 5 injections or less[2,3]



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...as early as possible in the course of the illness

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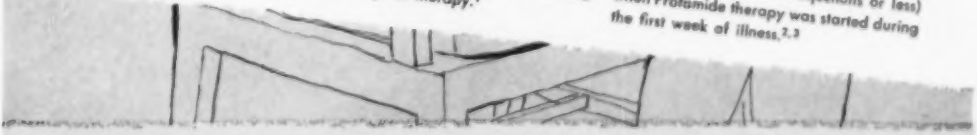

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REFERENCES:
1. Smith, R. T.: New York Med. 8:16, 1952. 2. Combes, F. C. & Canizares, O.: New York St. J. Med. 52:706, 1952. 3. Marsh, W. C.: U.S. Armed Forces M. J. 1:1045, 1950.

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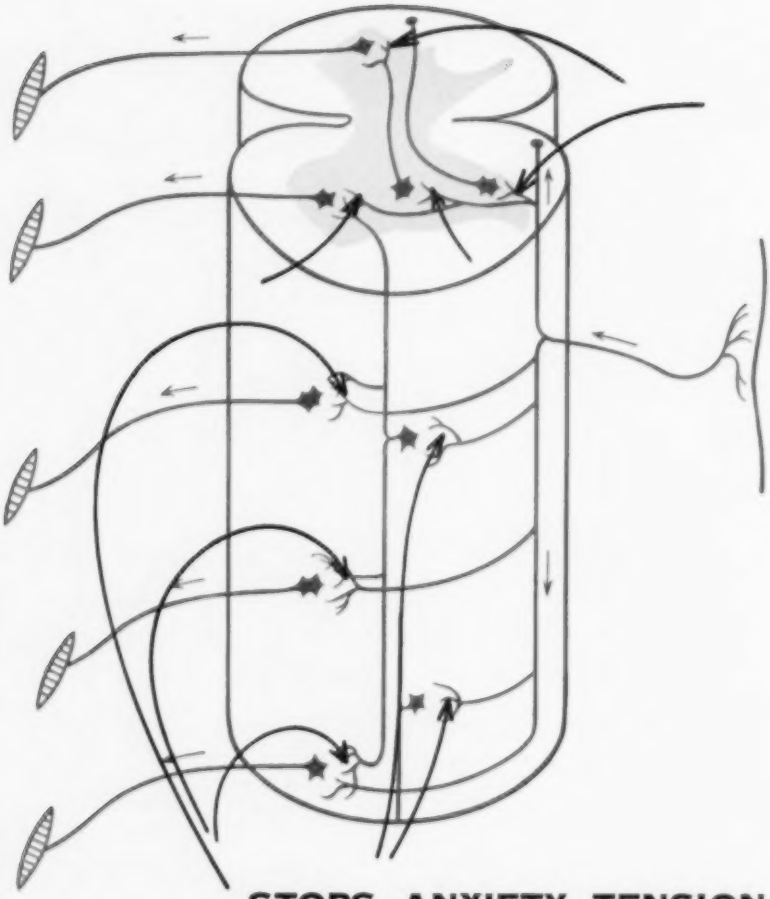

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THE NATIONAL DRUG COMPANY *Philadelphia 44, Pa.*

*New, SAFE relaxant—*DIMETHYLANE *blocks abnormal impulses at the spinal interneuron level, relieving tension and relaxing spasm without causing hypnosis or sedation.*

DIMETHYLANE, clinically the most satisfactory of the dioxolane group of relaxants, blocks transmission of impulses by the spinal interneurons, and does this more effectively and with a wider margin of safety than mephenesin.[1]

Voluntary movements are not affected: Therapeutic doses produce no weakness, paralysis or incoordination.

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A group of patients[2] were treated with DIMETHYLANE for symptoms and conditions attributed to tension or occupational stress (tension headache, substernal pain, chain smoking or excessive use of alcohol). "In all cases, DIMETHYLANE produced a state of relaxation lasting two to three hours after each dose."[2] The patients were able to do their work with maximal efficiency and reported complete freedom from the distressing tension symptoms previously experienced. With maintenance doses of DIMETHYLANE this relief was sustained.

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Write for samples and literature.

1. *Berger, F. M., Bockelheide, V. and Tarbell, D. S.: Science 108:561, 1948.*
2. *Baines, G. J. and Horowchak, S.: Indust. Med. & Surg. 22:228 (May) 1953.*
3. *Kraus, H. and Hirschland, R. P.: New York State J. Med. 54:212 (Jan.) 1954.*

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Dimethylane

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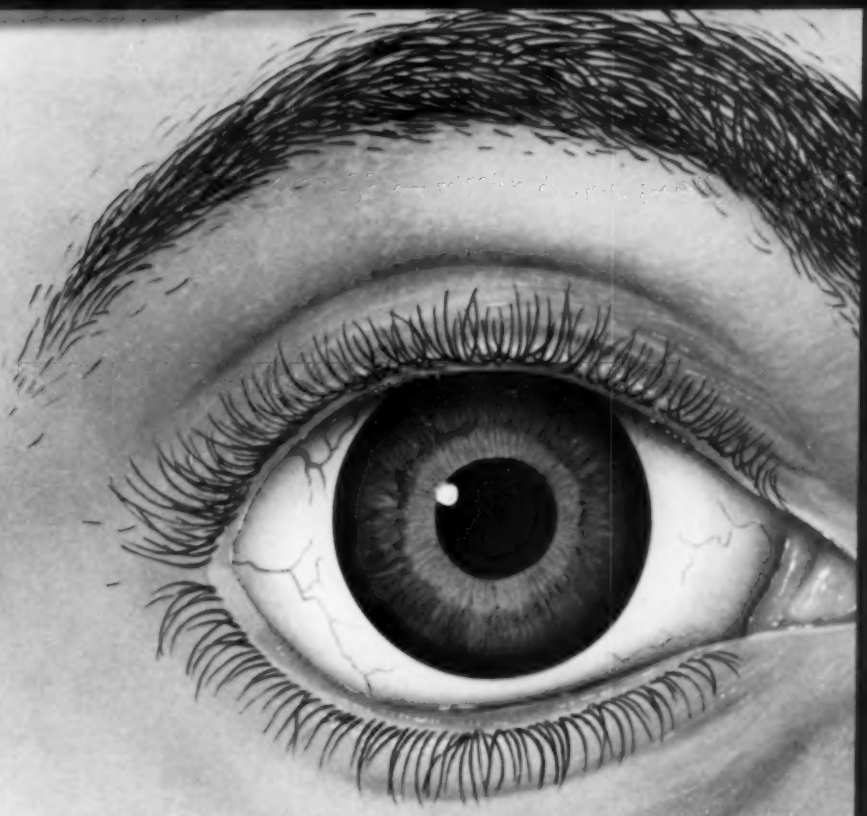
Capsules 2, 2-diisopropyl-4-methanol-1, 3-dioxolane

—Concluded from page 72a

OBS and Gyn, and for quick relief of surface pain in wounds, burns, abrasions, sunburn, etc. **Dose:** As determined by physician. **Sup:** In 12 ounce aerosol can.

Steri-Vail Ambodryl Hydrochloride, Parke, Davis & Company, Detroit 32, Mich. An aqueous solution of the antihistamine, Ambodryl hydrochloride, for parenteral use. For general antihistaminic therapy, acute allergic states for immediate relief, and those patients not responding quickly enough to oral forms of antihistamines. **Dose:** As determined by physician. **Sup:** In individual 10-cc. rubber-capped vials containing 5 mg. Ambodryl hydrochloride per cc. in aqueous diluent.

Vasocort Spraypak and Vasocort Solution, Smith, Kline & French Laboratories, Phila., Pa. Stable, buffered, aqueous solution containing hydrocortisone alcohol 0.02%; Paredrine hydrobromide (hydroxyamphetamine hydrobromide), 0.5%; phenylephrine hydrochloride, 0.125% preserved with thimerosal, 1:100,000. Indicated in treatment of acute and chronic rhinitis, seasonal and non-seasonal allergic rhinitis; including pollinosis; polyposis associated with nasal allergy, sinusitis; and nasopharyngitis. **Dose:** Vasocort Solution: adults—1 dropperful (4 drops) in each nostril, repeat every 3 hours. Children, ½ dropperful (2 drops) in each nostril every 3 hours. Vasocort Spraypak: adults—spray 3 times in each nostril. Repeat every 3 hours. Children, spray once or twice in each nostril every 3 hours. **Sup:** 2 forms: Vasocort Solution in ½ fl. oz. bottles with special dosage adjusted dropper and Vasocort Spraypak in convenient plastic spray bottles containing ½ fl. oz.



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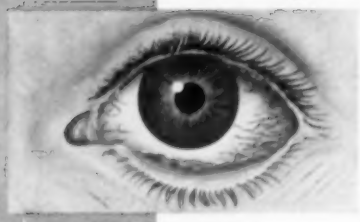

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Shock—Its Treatment At The First Aid Civil Defense Station

DAVID METHENY, M.D., F.A.C.S.*
Seattle, Wash.

It must be remembered that one thermonculear bomb will produce many thousand casualties. It will suddenly come to a city unprepared and poorly organized for such a disaster. There will be first aid stations set up as soon as possible two or more miles from the ground center of the explosion. Such a station that has just been set up might have to treat 200 or more cases of shock in the first 24 hours of its existence. The two doctors in charge will have to have in mind just what they must and can do if they are going to treat shock adequately.

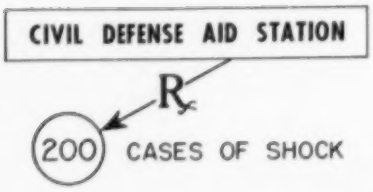
Shock is perhaps best defined as a systemic response to injury that will result in death if continued long enough. The magnitude of the injury and the length of time the patient has suffered are both important. The adequate treatment of shock requires the treatment of both the primary insult and the altered physiology. Sometimes an injury does not cause manifest shock, yet the systemic damage is such that further demand on the system (such as getting up, a long ambulance ride, or receiving an anesthetic) will cause hypotension. This is hidden or masked shock.

The patient in shock is usually pale, cold and thirsty. His heart rate is rapid, his blood pressure low, and his lips may be blue. If his blood pressure remains below 80-85 mm. of mercury, failure of circulation to the vital organs develops and dissolution of the intercellular enzyme system occurs. Metabolism ceases and shock has become irreversible. The most important injury to the physiology in shock is the reduction of the circulating blood volume. The venous return of blood to the heart, the cardiac output, the flow of blood through the tissues, and the oxygen in the venous blood are all less than normal.

The body tries to compensate for the reduced circulating blood volume in three ways: 1) contraction and shunting of the vascular tree; 2) increasing the heart rate; 3) abstracting fluids from the extravascular spaces and the cells to increase the volume of the blood. This third process may be very rapid.

Thus it is obvious that a patient with the cold clammy skin and cyanotic lips of shock could easily be killed by heat and blankets. Such patients are often restless. This restlessness is not caused

* Consultant in Surgery, University of Washington Medical School.



Shock a systemic response to injury. Both shock and injury require Rx. Masked shock.

by pain but by hypoxia. Treatment of restlessness with morphine will only increase the hypoxia. If the dose is sufficient to overcome the restlessness, respiratory depression will be such that death will come quietly and quickly—almost as the back is turned. Shocked patients must never be given morphine except for pain. Then it should be given intravenously in does of 1/8 to 1/6 gr. (8-10 mg). The treatment of the restlessness is to treat the hypoxia. Make sure that air is going into the lungs; and treat the shock. Apprehension can be treated with barbiturates in small doses.

The degree of shock usually depends on the amount of blood lost, and the amount of tissue damage. In the average adult (70 kilograms) the loss of about 1,000 cc. is not too serious if there is no further demand on the system. A loss of 1,500 cc. produces hidden or masked shock. These patients must be kept recumbent and quiet. Just tipping them up can cause profound shock. They cannot stand an anesthetic or a rough ambulance ride. A blood volume deficit of about 1,750 cc. usually reduces the blood pressure to 100 mm. of mercury or below. With the loss of 2,000 cc. or more the presence of shock is usually plain enough.

Tissue damage produces shock. The crush of tissue the size of a fist requires transfusion of about 500 cc. of blood to overcome the blood and plasma loss. In massive tissue damage, such as a crushed thigh, there seems to be some general vasodilation that also occurs. This is not well controlled by vasoconstrictors. Over-transfusion seems to be necessary for recovery.

The age of the patient, his previous health, his inherited reaction to stress, and the exhausting stimulus of pain all have their effect. Infection hastens irreversibility in shock. This may come not only from the original wounds, but even from the patient's own gastrointestinal tract. Fine, at Harvard, found that when dogs were bled until their blood pressures fell to 30 and kept there,

SYSTEMIC RESPONSE TO INJURY

1 Pale, cold, clammy. (Thirst)
2 Heart fast, BP low; lips blue.
3 Reduction in circulating blood volume:

Venous return
Cardiac output
Capillary blood flow
O_2 in venous blood

irreversibility developed much more slowly if their intestinal tracts had been previously treated with a broad spectrum antibiotic.* The recent word from Korea seems to be that all patients in shock

* Hardy at the University of Texas has repeated the work of Dr. Fine. His group found that the broad spectrum antibiotics would increase the number of those surviving to 36 hours but would not decrease the final mortality rate.

The truth of this matter will likely not be known until the experiment nas been repeated several times by different investigators. However, I am inclined to think that this variation in results shows the difficulty of finding an end point when experimenting in physiology. This difficulty of finding an accurate end point is also apparent in the controversy presently in the literature between the value of intra-arterial transfusions and intravenous transfusions.

NATURE'S COMPENSATORY EFFORT:

1 Contraction and shunting of vascular tree.
2 Increase in heart rate.
3 Fluid shift to increase blood volume.

Heat, restlessness, anoxia, morphine

should get 500,000 to 1,000,000 units of penicillin G and 0.5 gm. of streptomycin intravenously every 8 to 12 hours. As the tissue circulation improves intramuscular therapy can be substituted. The entire antibiotic therapy should be reevaluated after 72 hours.

Severe shock with marked blood volume deficit can be successfully treated only by increasing the blood volume. Nature does this by hemodilution. In emergencies we will likely use plasma expanders. Up to 1,500 cc. may be used. After that, one unit of blood should be used for every equal volume of expander that will be given. It is interesting to note that in the "Symposium on Military Medicine of the Far East Command," September 1951, it was thought that after 1,000 cc. of blood had been given, 10cc. of 10% calcium gluconate would be needed to counteract the citrate in each unit of blood that was going to be used from then on. This has since been found unnecessary, and there is a report from Korea of 30 units of blood having been given in a short time without harm from the blood or citrate and no calcium was given. In Korea much of the blood was given without cross match. It was low titre "O" Rh positive.

As regards the technique of infusions, it must be emphasized that veins in the creases of the joints are too mobile for much permanency without splinting. It is better to use other veins. If veins are collapsed and difficult to find and it time is precious, intrasternal infusion is quick and easy for solutions; but blood will tend to plug up the sternum after one or two units. If shock is profound and of long duration, venous spasm and pooling may be such that ordinary intravenous methods may not be effective. Although the use of large veins, such as the femoral, has been reported to be effective under these conditions I believe that the use of intra-arterial transfusion may save lives that would otherwise be lost.

On the question of whether it is more valuable to give blood into an artery or into a vein the experimental evidence is confusing. There likely is no advantage in arterial transfusion in the ordinary or even profound shock of short duration. But some experimenters seem to think that they have been able to find certain conditions where intravenous transfusions require more blood and are less effective. Certainly isolated clinical reports would confirm this opinion. It is my opinion that if a patient is in shock and if the venous pressure is such that blood will not run into the peripheral vein from a transfusion bottle held about five feet above the needle, and it is obvious that death is approaching, then the blood should be given into an artery where the resistance will be found to be much less than in the vein.

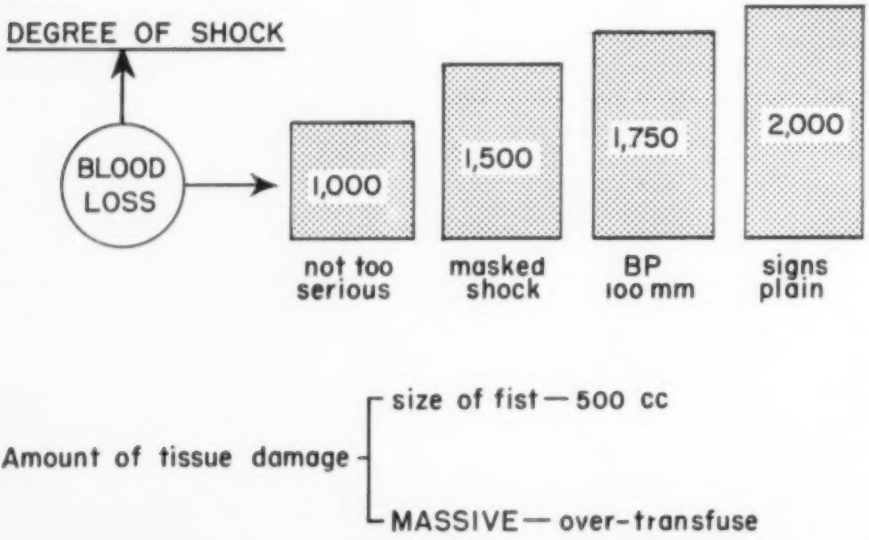
To give arterial transfusion, a large artery such as the femoral should be

used. A needle size #16 or larger should be used. For rapid transfusion the size of the needle is much more important than the pressure used. If the transfusion bottle is held five feet above the needle the blood will be delivered with a pressure of 120 mm. of mercury. In marked hypotension the blood will run into the artery very rapidly. No further apparatus is needed or advisable. There will be no over-transfusion. There will be no oxygen or air emboli. It must be kept in mind that the object is to produce a normal volume of effectively *circulating* blood.

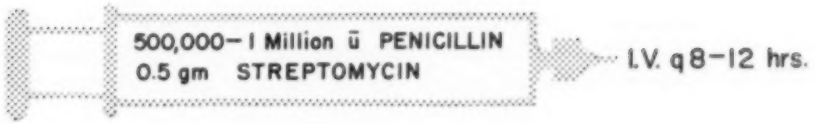
Vasoconstrictors are not recommended for hypovolemic shock. Nature is already using her own vasoconstrictors. She is also using vascular shunts to keep the blood where it is needed most. The use of vasoconstrictors to treat the low blood pressure of shock will appear to do good. But since it does this by shunting the blood away from some of the vital organs, and the flow of the blood through the liver and kidneys is not increased, the apparent good is only temporary. However, to overcome the vasodilation of the autonomic block of anesthesia vasoconstrictors are effective and necessary.

In the confusion at the first aid station of civil defense the doctor must know the potentialities of his station and what he can reasonably expect to do. He should know how soon he can evacuate his patients and how long it will take them to get definitive treatment after they leave his hands. Only then can he evaluate the extent to which he should treat shock, or know what to do with those patients who will develop shock shortly.

Patients in shock cannot be moved. They must be kept recumbent. While the excessive loss of bodily heat may not seem desirable, heating them with blankets so as to produce vasodilation will do harm. Immobilization and morphine for pain only (intravenously in



Infection hastens irreversibility in shock (Fine).



Re-evaluate after 72 hrs.

Severe blood volume deficit requires blood.
Plasma expanders — up to 1,500 cc, then 1 unit of blood per unit of expander.

doses 1/6 gr. or less), and barbiturates for apprehension can be given. Intravenous antibiotics, if you have them, are indicated. The ingestion of an alkaline saline solution (a teaspoonful of table salt and a half-teaspoon of sodium bicarbonate or better tasting sodium citrate per quart of water), as used in burns, can be expected to slow the onset and lessen the severity of shock. It does this by making water and electrolites available for necessary hemodilution. Where not contraindicated this solution can be used to quench thirst instead of water in mild shock. Thirst will be a good guide to the amount, up to about 6,000 cc. the first day. However, when shock is more severe intestinal absorption is impaired. The ingested fluids will stay in the stomach or intestinal tract until vomited and increase the hazard of inhalation pneumonia.

In the shortages that will occur active treatment of shock with blood or plasma expanders should probably be saved for those with systolic blood pressures below 85-90 mm. of mercury. An exception might be those with massive trauma in whom shock is sure to develop. Contrariwise, where simple blood loss has been the main cause of shock, it might be found that hypotension would be self-terminating with rest alone. No active treatment is recommended for those whose shock is caused by atomic radiation.

There will be certain injuries that will have priority over the active treatment of shock. External bleeding must be stopped, but no further debridement or manipulations should be done. Sucking wounds of the chest must be closed with adhesive and pressure or sutured tight. The failure of air to get into the lungs, whether from a "swallowed tongue" or pressure pneumothorax must be rectified at once. Similarly, paracentesis of hemopericardium will permit the restoration of normal blood pressure when nothing else will.

Most patients whose blood pressure

has fallen below 85-90 mm. of mercury and who have been treated with the above regimens, including 1,000 cc. of blood or plasma expanders, will have responded to treatment. There will be a few who will not. Those with massive injuries and those with profound hypotension of long duration will need more blood. In some whose injuries are apparently no greater than those who have responded to the shock regimen hypotension, tachycardia, and perhaps thirst, will continue. In these instances one of three following injuries is likely: 1) intestinal perforation, especially of the colon; 2) internal hemorrhage, either in the chest, abdomen, or deep tissue (as thighs); 3) expanding intracranial hematoma. If facilities are available they will have to be treated now. Otherwise they will not survive.

Shock that is delayed or recurs without apparent cause after the blood pressure has once been restored to a normal level is always very grave. It may be brought on by further demands on the body (an ambulance ride or an anesthetic) before the body has had time to recover sufficiently from the primary injury. It may be brought on because the severity of injury was underestimated in the beginning and treatment was inadequate. The commonest cause of delayed or recurrent shock in those who have been adequately treated will be recurrent hemorrhage. All such severe cases will need an indwelling catheter so that the hourly output of urine can be kept at 30-50 cc. This is the only way to know that fluid replacement is keeping ahead of dehydration. Unfortunately there will be cases of recurrent shock without adequate explanation and for whom no treatment will be effective. These will likely be cases that had irreversible shock when treatment was first started. The treatment that has already been given will have given only a temporary respite in a condition that was incurable from the first.

All serious cases of shock may be

TECHNIQUE OF INFUSION

1 Not at joint creases.
2 Intrasternal route.
3 Large veins.
4 Large arteries.

Needle size
Pressure

OBJECTIVE: normal volume of effectively circulating blood.

Use of vasoconstrictors.

SHOCK R_x AT AID STATION

Avoid motion — promote quiet and recumbency.

Splinting.

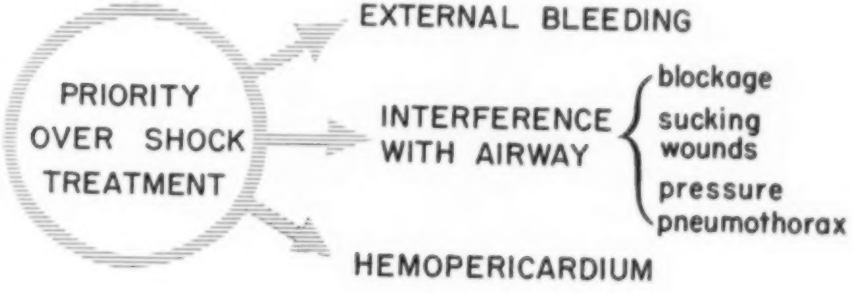
Antibiotics.

Cautious use of morphine and barbiturates.

Alkaline saline solution. Thirst. Vomiting.

Blood pressure a guide to use of blood and expanders.

followed by post-traumatic renal insufficiency. This will occur in 24 to 72 hours after injury. Unlike dehydration renal insufficiency will not respond to fluids. The 24-hour urinary output will be 500 cc. or less. The specific gravity will be low and fixed. Albumin and benzidine positive pigment will be found in the urine. The blood pressure will rise, nitrogen metabolites will increase in the blood. The treatment during the first few days will be the administration of just enough water and glucose to cover both measurable and insensible water loss; no more—no less. Accurately weighing the patient will be the best guide to treatment. The two real dangers are)1 sodium retention (edema) and 2) potassium intoxication. Sodium retention is avoided by not giving sodium. There is no excuse for giving sodium. Potassium intoxication is harder to prevent as this electrolyte enters the blood from the patient's own tissues. Excretion of potassium through the intestinal tract by various means can be stimulated to advantage. Gastric lavage with 500 cc. of 10% glucose in water repeated several times, followed by an enema with 50 gm. of carboxylic acid (an exchange resin) in 700 cc. of water has been effective in one case that has come to my attention. Even plain



When there is failure to respond to shock R_x, think of:

intestinal perforation
internal hemorrhage
intracranial hematoma

Delayed or recurrent shock grave.

Value of indwelling catheter.

Post-traumatic renal insufficiency.

Sodium retention — avoid giving Na.

Potassium intoxication { gastric lavage; exchange resin (carboxylic acid) }

water enemas are of some value in hyperkalemia. The use of hemodialysis has been reported as life saving in Korea. The retention of nitrogen metabolites is not sufficiently serious to warrant any cognizance being taken of it in emergency first aid conditions.

If it is necessary to give an anesthetic in a first aid station remember that giving an anesthetic to a patient without a normal blood volume is very dangerous. Patients in shock require much less anesthetic than other patients. All wounded are hypersensitive to barbiturates. Ninety mg. of pentobarbital sodium intravenously will control much pain. The addition of 8 mg. (1/8 gr.) of morphine intravenously will control pain for which 24 mg. (⅜ gr.) of morphine hypo will not suffice. Most wounded with shock have very little pain. For these 0.6 mg. (1/100 gr.) of atropine and 90 mg. (1½ gr.) of pentobarbital is the premedication of choice. All cases must have gastric lavage before inducing the anesthesia. If the lavage is done so that the patient vomits there will be reasonable certainty that the stomach is emptied. This is the only way to avoid aspiration of vomitus, the most common, serious, and needless complication in handling wounded patients. Ether, through an endotracheal tube, is the best anesthetic for the wounded. Next would be open drop ether; pentothal (Thiopental) sodium and other methods are not recommended except for expert anesthetists. Pentothal anesthesia, even when deep, does not prevent the respiratory stimulation of anoxia and those unfamiliar with the use of this anesthetic are likely to misinterpret this stimulation as a need for deeper anesthesia where, actually, more oxygen is needed. Retained carbon dioxide will now become a respiratory depressant. Except for short operations, pentothal can be a very dangerous anesthetic even with the simultaneous administration of oxygen. Its use is unwise 1) when there is an overdose of morphine, 2) when shock is present, 3) when operating on the neck or where the air way is impaired, 4) in the presence of burns, or 5) when relaxation is needed.

Cautions regarding drugs & anesthesia for patients with lowered blood volume.

Gastric lavage.

Choice of anesthetic:

endotracheal ether
drop ether
pentothal

In summary: The doctor who first treats shock of patients in civil defense should do the following:

1. Stop external bleeding;
2. See that air gets into the lungs;
3. Be judicious in the use of morphine, and use it only intravenously;
4. Treat mild shock by rest, immobilization and promotion of hemodilution;
5. Try to keep blood pressures above 85 mm. of mercury;

at Aid Station

- ✓ 1 Stop external bleeding.
- ✓ 2 See that air gets into lungs.
- ✓ 3 Morphine judiciously and I.V.
- ✓ 4 Rest, immobilization, and hemodilution.
- ✓ 5 Try to keep BP above 85.
- ✓ 6 Evacuate as soon as possible.

6. Evacuate his patients as soon as possible.

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226 Stimson Building

Clini-Clipping

Differential Diagnosis Between Psychotic and Neurotic Depressions.

Psychotic Depressions	Neurotic Depressions
1. Depression is the chief complaint.	1. Anxiety and fatigue are the chief complaints.
2. Somatic complaints are either absent or not prominent.	2. Somatic complaints are prominent.
3. Remorse and self-reproach are present.	3. If remorse and self-reproach are present, they are obviously insincere.
4. Tendency to feelings of guilt, and does not blame others.	4. Blames others for difficulties and state of mind.
5. Weight loss occurs in every case.	5. Weight loss seldom severe; often not present.
6. Constipation is a prominent symptom.	6. Constipation not prominent.
7. Course of disease invariant and unfluctuating.	7. Course variant and fluctuating; degree of depression varies with environmental change.
8. No definite precipitating factor can be ascertained. Cause undiscoverable.	8. Causes and precipitating factor are usually well-defined.
9. Entirely well between attacks.	9. Patient not free of neurotic manifestations or mental tension between attacks.
10. Suicide often sincerely attempted, with or without previous threats.	10. Suicidal attempts insincere and abortive; always preceded by volume threats.
11. Minnesota Multiphasic Personality Inventory does not show neurotic abnormalities.	11. M. M. P. I. shows high neurotic scores.

Tumors of the Breast

This summarization attempts to cover the essential information on the subject, including therapy, and is designed as a time-saving refresher for the busy practitioner.

Part 2

Treatment

Benign tumors

1) Removal of mass 2) Simple mastectomy—Many operators feel the simple removal of the mass is sufficient and use radiating incisions or incisions directly over a suspected tumor. Rice and Strickler[19] point out the following reasons for the inadequacy of this method:

1. The incision is unsightly
2. It doesn't allow for adequate examination of the surrounding breast tissue
3. Bleeding may be excessive because of the inadequate exposure through a small deep dissection
4. If a carcinoma is encountered the infiltrating portion of the carcinomatous tissue may be cut through and an implantation of cancer cells thus occur
5. If, in chronic cystic mastitis, the tumor is multiple it is impossible to remove or explore more than the one tumor which had been palpated.

They suggest that an incision in the mammary thoraco fold on the under side of the breast (Warren incision) can be extended to one side or the other and any part or all of the mammary gland can be exposed. The breast can be everted over the finger for examination of the posterior surface of the gland. The advantages of this incision as pointed out by Rice and Strickler, are

1. When an isolated tumor is palpated the tumor and surrounding breast tissue can be excised and the rest of the gland palpated and inspected at the same time.
2. If multiple cystic disease is found, all breast tissue (complete adenomammectomy) is removed thus obviating future lumps and excisions. The preservation of the nipple and the maintaining of normal breast contour by leaving the breast capsule and subcutaneous fat does much to make this acceptable to the patient.
3. If carcinoma is found, the incision lends itself to radical mastectomy.

Adenomammectomy in which all the breast substance is dissected from be-

neath the breast capsule simplifies mammoplasty of breast hypertrophy.

Malignant Tumors

1. *Radium:* Applied interstitially at site of tumor in needles is mentioned only to be discarded as it is less desirable than surgery in operative cases..[3] It does not destroy carcinoma in the axillary nodes, whereas surgical dissection is highly efficient in destroying carcinoma in the axilla.

2. *X-rays:* x-ray therapy alone is of limited value for although, as Haagensen states,[3] when given in maximum doses x-ray locks the disease up in scar tissue for many years, x-ray is unable to control axillary metastases.

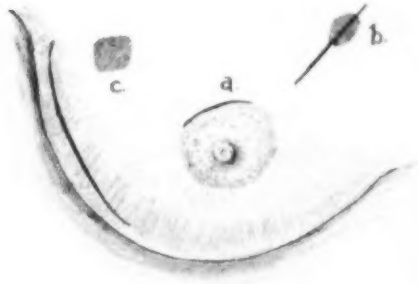

Fig. 1. Incisions for removal of benign tumors.

a. Curved areolar.
b. Radical.
c. Curved marginal (Warren).

Prophylactic x-rays are now given more frequently following operation than preoperative as the only thing to be gained by preoperative x-ray is a restraining effect on the cells should they be left by the surgeon at operation. In the hands of a good surgeon, only 10% local recurrences occur and these can then be dealt with by x-ray on their appearance later.

Many surgeous feel that the use of x-ray postoperatively is a needless economic and biologic expense with very little evidence to point to any increase in cure rate as the result of its use. Others feel that with radiation the survival rate is increased by 5 to 15%.[20] The majority of surgeons use it, if on examination the axillary nodes show cancer, going on the basis that x-ray is cancerocidal for some cells.

Metastases as they occur should be treated by radiation. Radiation is useless for the metastases of the abdominal viscera (liver, spleen, peritoneum) according to Haagensen nor to the pulmonary metastases if they are wide spread.[3] In pleural metastasis temporary palliation may be obtained. Metastatic ca of the brain and spinal cord is usually secondary to skull and vertebrae and radiation is then of little help. Metastatic nodules of the skin regress with proper radiation. Its greatest usefulness in palliation is in controlling the pain from metastases in the bones especially vertebrae and pelvic bones for these progress slowly and cause great distress. It can relieve temporarily the distress of increased mediastinal pressure.

Huggins[21] summarizes it as follows: radiation is extremely valuable for symptomatic and palliative relief but there is no evidence that life is much prolonged. Sooner or later, in chasing new foci of metastasis as they develop, complications occur from radiation treatment. 1) the limit of tolerance of normal tissues overlying the lesion is reached or exceeded 2) so much bone marrow is destroyed that a granulocytosis or significant anemia is produced or 3) coagulation of the blood is dis-

turbed and a bleeding tendency develops. These developments compel the abandoning of x-ray.

Taylor[22] finds that radiation therapy to local areas of osseous metastasis is usually superior to steroid therapy and not to be withheld even if a steroid is given.

Surgery

A. *Radical Mastectomy* encompassing the following steps 1) removal of the skin over the whole breast, covering the defect that remains with a Thiersch graft when necessary 2) excision of both pectoral muscles 3) complete axillary dissection and 4) removal of the excised tissue in one block as advocated by Halsted and Willy Meyer is the operation of choice among the foremost surgeons. The technique with step by step details and variations may be found in all good surgical books and the reader is referred to them.

B. *Simple Mastectomy* followed by x-ray therapy still has its advocates. As Haagensen[3] points out the area of skin sacrificed is so small and the flaps are so thick that a good deal of mammary tissue remains on them and may harbor carcinoma. The pectoralis major is not removed and this muscle or the fascia over it is frequently involved in carcinoma even when the lesion lies deeply in the breast.

Criteria for judging operability in carcinoma of the breast.[23]

Women of all age groups who are in good enough general condition to undergo major surgical intervention should be

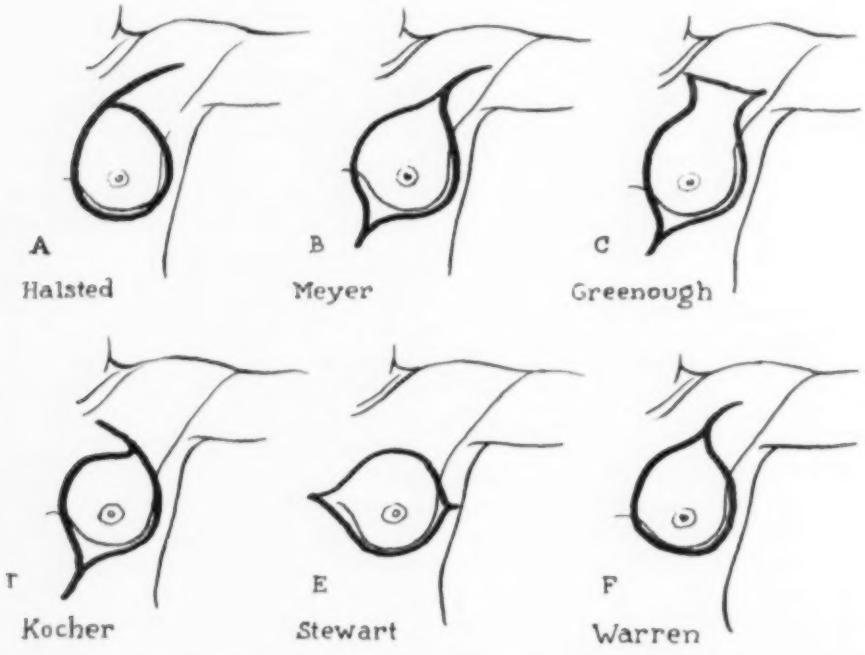

Fig. 2. Favorite incisions for radical mastectomy.

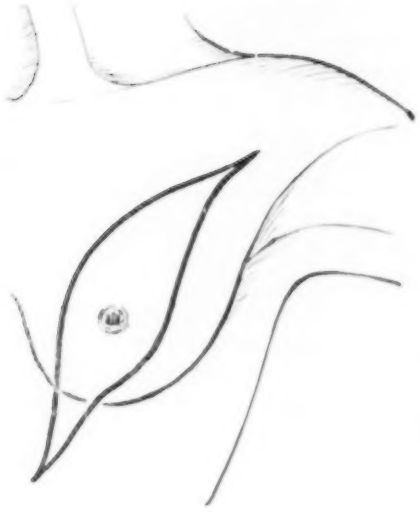

Fig. 3. Incisions for simple mastectomy.

treated to radical mastectomy except as follows:

1. When the carcinoma is one that developed during pregnancy or lactation
2. When extensive edema of the skin over the breast is present
3. When satellite nodules are present in the skin over the breast
4. When intercostal or parasternal tumor nodules are present
5. When there is edema of the arm
6. When proved supraclavicular metastases are present
7. When the carcinoma is of the inflammatory type
8. When distant metastases are demonstrated by x-ray
9. When any 2 or more of the following signs of locally advanced carcinoma are present
   a. ulceration of the skin
   b. edema of the skin of limited extent (less than $\frac{1}{3}$ of the skin over the breast involved)
   c. solid fixation of the tumor to the chest wall
   d. axillary lymph nodes present which measure 2.5cm or more and prove to contain ca by biopsy
   e. fixation of axillary nodes to the skin or deep structures of axilla

At Massachusetts General Hospital the following rule has been evolved "carcinoma of the breast is operable when the disease is confined to the breast or the breast and axilla.[3] The primary tumor must be movable in relation to the chest wall and not present extensive skin involvement, skin metastases or the subepidermal infiltration known as "inflammatory" carcinoma. The axillary glands must be movable in relation to the chest wall and great vessels and these nodes must be few in number. There must be no evidence of the disease in the supraclavicular areas or in the opposite axilla nor metastatic disease in the lungs, pleura or skeleton."

McCormick[2] states that early diagnosis and radical mastectomy seems more important than extension of the surgical field into the neck, thoracic cage and other structures.

C. Ovariectomy. Removal of ovaries in mammary cancer is used as a prophylactic measure in reducing the incidence of recurrence or in increasing the interval from time of the original treatment until the disease recurs. Huggins[21] feels that it effects regression in 20% of mammary cases. He says that, when successful, ovariectomy causes relief of pain, dimunition or disappearance of the primary tumor, healing of ulcers, improved nutritional status and prolongation of life lasting for a tran-

sient period of time anywhere from 6 months to 3 or 5 years.

In breast carcinoma complicating pregnancy ovariectomy, at the time of caesarean section, has produced regression and it is recommended that it should be used routinely here.[24]

Some advocate ovarian irradiation—the results are found sometimes to be remarkable with prompt effective relief of pain, improvement in health and partial or complete regression of bone metastases but the best responses occur in the premenopausal woman.

D. *Hormone Therapy.* Hormonal therapy has a definte but limited palliative effect on an appreciable number of advanced mammary carcinomas.

1) *Androgen* therapy is preferred in all menstruating women and at all ages as acceleration of tumor growth in the female is never seen with its use. There was objective improvement, according to Karnofsky, in some, after the use of androgens which was temporary and variable.[25] Later, the disease became subjectively and objectively progressive despite dosage. On cessation, there was a secondary period of improvement for 1-4 months probably a tumor cell adaptation to specific hormonal environment and temporary inbalance.

The improvement included increased appetite, gain in weight, decreased pain, lessened need for narcotics, renewed interest in life—with improvement in soft tissue and bone metastases in about 20%.[26] These osseous metastases respond to testosterone with an increased density of bone and a filling in of the osteolytic lesions.

Side effects are common; with edema from salt and water retention being most common. Minor complications are hirsutism, bass voice, acne, loss of hair, etc.

2) *Estrogens* are to be used only in older women in the post menopausal group. Estrogen during the premenopausal age or within 5 years after the cessation of menses has been known to accelerate tumor growth. It is better not to use an arbitrary period of time but to check vaginal smears to determine its use. If smears, taken at intervals throughout a month, fail to show estrogenic activity—estrogens can be used. If menses have been absent even 5 years and the smears show evidence of estrogenic activity, use androgens without exception. Estrogens are particularly indicated in soft tissue metastases of lymphatic and cutaneous type. The effects include decrease in size or healing of ulcer of the primary tumor, masses show regression in size—recurrent skin nodules decrease or disappear.[25] There is a regression of pulmonary and osseus metastases. Side reactions are: edema, vaginal bleeding, nausea and vomiting, pigmentation of areola and axilla, hypercalcemia and incontinence of urine.

3) *Androgens and estrogens* may be effectively combined in certain cases to produce the best effect with the least side reactions. It may be because combining increases certain general metabolic effects such as the ability to stimulate bone matrix formation and protein synthesis.[26] Homburger feels it is these tissue building properties of the sex hormones rather than their specific sexual properties that account for their inhibiting the growth of mammary tumors in women. Haagensen[3] postuates that there is to some degree a direct restraining effect by the hormone upon the growth of the carcinoma cells, the mechanism of which is not known.

Hormone treatment should not be

given until surgery and irradiation have been used to their full potential because the latter are more effective and have fewer distressing attendant consequences. Once hormone therapy has been started it should be continued without interruption, except when one type is no longer effective it is worth while to try another, until the end.

E. *Adrenalectomy*—Total adrenalectomy for advanced mammary carcinoma is still in the developmental phase. Adrenalectomy with maintenance by cortisone and desoxycortico—sterone acetate appears promising in the relief of certain patients with advanced ca who did not respond or had escaped control from the other androgens.

Breast Tumors in the Male

A. Benign

Benign enlargement is due generally to gynecomastia with microscopically benign proliferation of the stroma and ductal elements.[27]

1. *Etiology*—1) Endocrine disturbances: disease of any of the endocrine glands, more commonly neoplastic. They are often associated with hypohyseal tumors or choriocarcinoma of the testis. 2) Non-endocrine disease such as leprosy, pulmonary neoplasm or pulmonary tbc. 3) Questionably trauma. 4) Follows prostatectomy and the use of stilbesterol.
2. *Symptoms*
   1. Swelling—most common—may be unilateral or bilateral
   2. Pain and tenderness
3. *Treatment* consists of operation using a semicircular areolar incision which is an incision within the areolar border involving the lower half of the circumference.

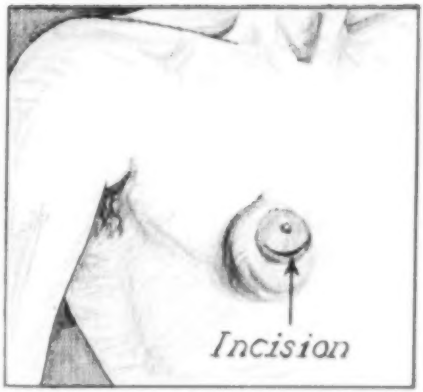

Fig. 4. Incision site in operation for benign enlargement in male due to gynecomastia.

B. Carcinomatous lesion

1. *Occurrence* about 14% of all cancer in males is due to cancer of the breast.[28] Average age was 57 + years youngest 12, oldest 91 years.
2. *Cause*—Heredity is an enhancing factor but does not explain the majority of cases.
   Trauma is not considered to be of any importance as an irritative factor.
3. *Symptoms*—in the study and review of the literature made by Hunt and Kraft the following were noted
   1. Mass—in 50% of cases
   2. Pain—in 38.1%
   3. Nipple retraction in 33.1%
   4. Ulceration in 20.6%
   5. Bleeding from the nipple in 14.5%

   The duration of these symptoms varied from 1-2 weeks up to 9 years and reflects the reason for the prevailing prognosis.
4. *Diagnosis* is made on history, physical and biopsy

5. *Treatment*—demands radical surgery with no preoperative radiation.

Postoperative radiation is a true adjuvant in carcinoma of the male breast especially if metastatic axillary glands are present. It is imperative that the mediastinal lymph glands be treated for with so little breast substance and fat due to male physique to allow for surrounding tissue extension, metastasis to these mediastinal glands occurs rapidly.

Orchiectomy in the presence of distant bone metastases is of definite value in lengthening life and alleviating pain. Kraft and Hunt found a gain of 20 months in some.

Estrogens—are of real value in late or recurrent cancer of male breast with prompt healing of the ulcer, decrease in size of primary tumor—disappearance of skin nodules and regression of bone and lung metastases for a variable time.

6. *Prognosis*—is poorer than for the female with only a 20% outlook for 5 year survival. This is due to the following: 1) Failure of early recognition by the patient 2) Failure of the physician to realize the potentialities for serious, rapid progression in the male patient and 3) The increase in the percentage of axillary metastases due to the anatomy of the male breast with lack of breast substance for surrounding tissue extension before metastasizing distally.

Prognosis for Female For the purpose of therapeutic evaluation studies and crude group prognosis staging of breast carcinoma is needed.

McQueeney[30] suggests an atomic grouping for the following basic stages of infiltrating breast carcinoma:

Stage I

Primary lesion limited to breast with no extra-mammary extension demonstrable by routine pathological study. Expected 5 years survival rate 85%.

Stage II

Primary lesion with demonstable metastasis in central and basal axillary nodes. Expected 5 year survival rate 50%

Stage III

Primary lesion with apical lymph node metastasis involving 50% or less of demonstrable apical axillary nodes. Expected 5 years survival rate 30%

Stage IV

Primary lesion with extra axillary metastasis or metastatic involvement of better than 50% of demonstrable apical axillary nodes. Expected 5 year survival rate 15% (often not determined preoperatively but this stage is obviously inoperable.)

These survival rates are crude approximations.

For statistical percentages the following are examples:

I—Burdich and Chanatry[30] in a survey of breast carcinoma with radical mastectomy 1920-1952 found

a. A 5 year overall cure rate of 38%
b. A 5 year cure without node involvement of 57%
c. A 5 year cure rate with node involvement of 26%

Their 10 years over-all cure rate was 19% (this 10 year figure is now thought to be more significant)

II—Clifton and Young[31] studied 322 cases of radical mastectomy with pathologically proven carcinoma in a 5-25

year study and found

a. 5 year overall cure rate 54.9%
b. 5 year cure rate without axillary node 75.8%
c. 5 year cure rate with axillary node 36.08%

III—Lewison et al. in 1953 summarized 208 cases at Johns Hopkins[32] operated on between 1935-1940 and found

a. 5 year overall survival rate of 43.2%—a total clinical cure rate (no recurrence or metastases at 5 years) 38.2%
b. 5 year cure rate without axillary node 64%
c. 5 year cure rate with axillary node 31%

The total 10 year survival rate was 29.1%

These and similar analysis of large groups of cases warrant the following conclusions:

1. The pathological picture of the tumor and the age of the patient are probably the most important factors in the determination of the diagnosis

2. Pregnancy and lactation associated with carcinoma of the breast gives a poor or hopeless prognosis

3. There is an important relation between the size of the tumor at the time of pathological examination and the time of survival

a. with lesions 1cm or less 88.8% at 5 years
b. with lesions 4cm—rate is only 50% at 5 years

4. The presence or absence of axillary involvement appears to be a paramount and decisive factor in prognosis

5. The time after operation at which recurrences are clinically manifest is influenced by the stage of disease at initial operation.[34]

Stage I median for recurrence is 30 mos
Stage II median for recurrence is 21 mos
Stage III median for recurrence is 12 mos

6. Local recurrences and general metastases limited to bones make themthemselves manifest clinically at 27 mos. The length of life after recurrence is influenced to a minor degree by the stage of the disease at operation but more significantly by the type of recurrence.

Park and Lees[35] in their paper "The Absolute Curability of Cancer of the Breast" conclude as follows: the treatment of cancer of the breast is based on the hypothesis that earliness of treatment increases the cure rate. They feel that this does not hold mainly due to the great variability in growth rates between different breast carcinoma. They suggest that, from the present evidence, the apparent curability of cancer of the breast can all be explained on this basis of growth rate; and the survival rate, using the 5 year as index, is unaffected or affected only by 5 or 10% by any of our present treatments.

Kreyberg and Christiansen[33] in Norway concluded that, although modern methods of treatment can delay the fatal issue for patients seen with very small tumors on first examination they cannot hope for any better prognosis than the patient seen in the first or second stage. It is the degree of malignancy that counts.

With an increased knowledge of the means and methods for early finding of breast changes by the patient, of early diagnosis and treatment by the physician or the methods of palliation, it is hoped that there will be an increasing salvage of these patients or a pro-

longation of life in comfort. It is to be remembered, as pointed out in an editorial of July 18, 1953 in the J.A.M.A. that cancer as a disease is unpredictable. They remind us that certain numbers of untreated patients will survive longer than expected, in some the tumors will disappear spontaneously, in some the growth will wax and wane in cycles. There have also been instances of delayed recurrences with tumor cells locked up for long periods in lymph nodes or vital organs and occasionally a sudden rapid metastasis occurs after a long period of quiescence. Cancer may behave as a chronic disease for long periods. This is not confined to any particular type of cancer but seems to be due to a wide variation in the individual resistance of patients to malignant growths. In view of this they further state physicians must be guarded in offering prognosis to the patient and family and keep from giving so-called cancer cures at least temporary support.

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Prostatitis

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The robust impatient male that comes in the office complaining of vague inguinal or perineal discomfort, malaise, backache or only a slight urethal discharge is by no means a medical curiosity. We may not be over enthusiastic about his appearance for in the majority of instances we have found, by bitter experience, that our therapeutic results are not spectacular and often the patient takes an unappreciative view of our not too obviously successful efforts. It is this perplexing group of patients that I am going to discuss.

Non-specific infections of the prostate constitute a major portion of any urological practice and certainly play a prominent role in the practitioner's urological clientele. It cannot be denied that prostatitis should hold a place in medicine equal to other focal infections, but the rather tedious non-glamorous diagnostic and therapeutic demands on both the part of the physician and patient afford prostatitis a niche disproportionate to its rightful place on the clinical horizon.

Prostatitis is an inflammatory disturbance of the prostate and is in no way associated with hyperplasia of the prostate. Thus, prostatitis is a young man's disease. It is imperative to realize further that prostatitis is rarely limited to the prostate alone, but is associated with inflammatory pathology of the entire genital system. When the process involves the posterior urethra for a prolonged period it may extend to the bladder neck and cause a vesical neck contracture of obstructive significance. Hence, our diagnostic and therapeutic efforts must be directed not only to the prostate, but the entire genital system and contiguous structures.

Incidence Prostatitis, in some degree at one time or another, affects more than fifty percent of men. The majority of these patients are without symptoms for a variable period of time and for this reason the etiology and time of origin is often obscure.

In the years gone by gonorrheal urethritis undoubtedly accounted for many instances of chronic prostatitis. On the other hand, many of these individuals unquestionably in spite of gonorrheal urethritis had an unrelated prostatitis. This latter point is substantiated by the fact that less than 30 percent of the patients with prostatitis have a history of gonorrhea. And in this respect let us not forget that the gonococcus has not been demonstrated in either the prostatic or seminal fluid more than 18 months after an acute infection. It may be said then, that in the past and certainly in our present antibiotic era that

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gonorrhea has never accounted for as many instances of chronic prostatitis as is usually believed.

Etiology The most common etiological factors are (1) focal infections and (2) an abrupt change in sexual habits.

Non-specific prostatitis is etiologically most frequently associated with the coccal infections (Staphylococcus albus and Streptococcus viridans). The colon bacillus is next most frequent and Streptococcus hemolyticus is found not infrequently while diphtheroids and microcatarrhalis are less evident culturally. Mixed infections are the rule though there is a relatively large number of patients with an aseptic pus-laden prostatic fluid. Furthermore, the type of infecting bacteria is in no way related to the severity of the symptoms nor their chronicity. Certainly some of the aseptic prostates exhibit the greatest degree of therapeutic resistance.

The route of infection may be through the posterior urethra, but more often it is blood borne from some distant focus of infection (tonsils, nasal sinuses, teeth, etc.) Lymphatic extension from the large bowel is improbable, but a source in the upper intestinal tract or biliary system is common. The prostate may be secondarily involved in such fevers as scarlet or typhoid and such infections as pneumonia, influenza or brucellemia. It is obvious that infections of the genital or urinary tract can most easily extend directly to the prostate. Diabetes mellitus may be associated with a persistent prostatic infection which resists all local measures of treatment.

Our second major etiological factor is that of abrupt change in sexual habits. This affords the production of stasis within the prostate and seminal vesicles and either actual overdistension of the prostate and seminal vesicles or secondary infection. It is not unusual in these patients to have an actual chemical prostatitis occasioned from the decomposition of the prostatic fluid that can not escape from the prostate and seminal vesicles.

Pathology Pyogenic infection of the prostate is usually associated with seminal vesiculitis and may be acute, suppurative or chronic. The infection may proceed to such infections as urethritis, trigonitis, cowperitis, vasitis, funiculitis, epididymitis and orchitis.

Acute Prostatoseminal Vesiculitis is most often an extension from the posterior urethra although it may be metastatic or blood borne. If urethral in origin the prostatic and ejaculatory ducts are involved and the infection with its associated edema causes a variable degree of ductal obstruction and thus a localized retention of prostatic and seminal fluid which in time becomes infected and the infection extends to the periphery of the gland and the seminal vesicles. If the process continues abscess formation may occur and extension results in periprostatic and periseminal vesicle infection with the inflammatory involvement of the contiguous ureters and ureteral obstruction. The histological picture is one of polymorphonuclear infiltration with occasional areas of lymphocytic infiltration.

Chronic Prostatoseminal Vesiculitis is undoubtedly the most common outcome of the acute process although it is frequently unassociated with a subjective history of acute prostatitis. The most frequent histological picture is that of foci of acinous or periacinous inflammation with an infiltration of lymphocytes, leukocytes and plasma cells

throughout the stroma. Eventually there is connective tissue substitution for the inflammatory areas in the prostate. Marked variation of this histological picture may be found in the gland that is the site of chronic infection. At the outset the process may be limited to the interior of the gland, but as the process extends perivesicular infiltration is not uncommon and the intervesicular area may be obliterated. If there is a continuation the lower ureters may be constricted, but often the vesical neck may be constricted and thus a fibrous contracture of the bladder neck ensues which may cause a variable degree of vesical dysfunction and residual bladder urine.

The exacerbation of chronic inflammatory process in the prostate may cause an excretion of the inflammatory products into the posterior urethra with a resultant urethritis (posterior) and secondarily a trigonitis or generalized cystitis. If the posterior urethral infection is not too active the products are washed by the urine into the anterior urethra to cause a urethritis. The most common changes in the posterior urethra are those of a granular urethritis, urethral polypi and granulomata particularly about the verumontanum.

If the posterior urethral infection proceeds into the seminal vesicles and vasa a secondary vasitis and epididymitis results and this complication is not rare in individuals with chronic prostatovesiculitis. On occasion the symptoms appear to be associated with heavy lifting. Sudden increases in the intra-abdominal pressure probably increase the intra-urethral pressure and actually force the infectious material into the ejaculatory ducts and the vas with sufficient force to involve virgin tissue and with

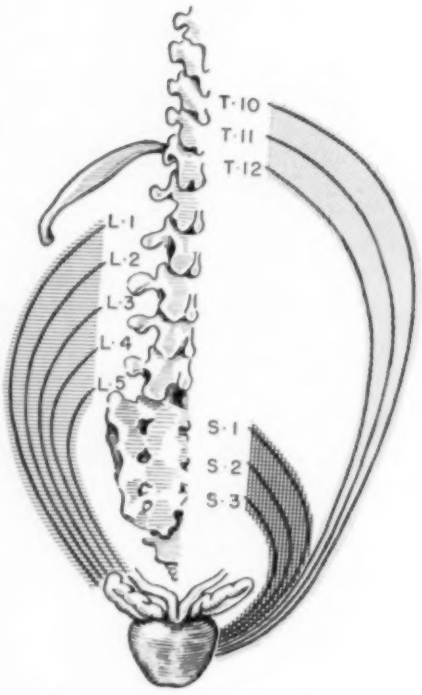


Fig. 1. Innervation of the Prostate.

a fertile field the infectious material enjoys new vigor and a resultant vasitis and epididymitis appears with such promptness that the patient is convinced of its traumatic and compensable origin.

Chronic prostatitis may develop from sexual inactivity and in this group the acini of the prostate are greatly distended and in extreme instances where this condition has continued over a long period the prostate may be actually enlarged. The retained prostatic fluid undergoes a degree of decomposition and thus there occurs a chemical prostatitis with or without secondary infection. If the prostate is overdistended for a sufficiently long period its muscular elements become decompensated and a

return to normal sexual activity affords little or no drainage of this stagnant gland and seminal vesicles.

Symptoms The symptoms of acute prostatitis vary with the origin of the infection; i.e., if urethral in origin the symptoms are referable to the urinary tract while if systemic the symptoms may be non-urinary being localized to the prostate and contiguous structures and urinary-involvement is secondary.

When *acute prostatoseminal vesiculitis* is urethral in origin the condition is most often initiated with urinary frequency, urgency, tenesmus and painful urination. The condition may on occasion become progressively worse with prostatic edema and urinary retention or prostatic abscess formation. The instances of acute prostatoseminal vesiculitis which are of hematogenous origin may be initiated by a sudden chill and high fever. This sudden systemic reaction is accompanied or followed at a varying interval by perineal discomfort, rectal pain or suprapubic pain. Characteristically the pain originates in the groin and does not have the paraumbilical onset of appendicitis. It is not unusual to have the symptoms accompanied by nausea and vomiting. The nausea and vomiting occur after the onset of pain as opposed to the pre-pain nausea of appendicitis. On occasion there may be symptoms of ureteral colic occasioned by ureteral obstruction due to spasm of the ureter by contiguous inflammatory reaction from a marked periseminal vesiculitis. Obstipation has been reported from the pressure of a large inflammatory prostatoseminal vesiculitis which actually obstructs the rectum. It is to be remembered however that the large majority of instances of acute prostatoseminal vesiculitis are initiated by no demonstrable symptoms and the patient becomes aware of prostatic disease only after chronic prostatitis has developed.

The symptoms of *chronic prostatoseminal vesiculitis* are not always clearly defined. Chronic prostatoseminal vesiculitis will be considered with regard to its (1) urinary, (2) sexual and (3) systemic manifestations. Before discussing these various symptom pictures it is important to emphasize that any patient may show a combination of the above mentioned divisions either at the same time or during the course of the illness. Furthermore, in every instance the entire gland genital tract is variably involved so that the condition should be considered as an infection of the genital tract rather than that of the prostate or the seminal vesicles separately.

The *systemic manifestations* of chronic prostatoseminal vesiculitis are those associated with any focus of infection. Prostatoseminal vesiculitis most often contributes to pathology at a distance from the prostate; the most common sites being joints, bursa, tendons, muscles, bone and the eye. It is obvious that distant infections can be readily overcome after the genital tract has been rendered innocuous.

The most common symptom complex of chronic prostatoseminal vesiculitis is that of referred pain. These patients may have pain in any area which is innervated by the nerves of the prostate and seminal vesicles; i.e., T 10, 11 and 12; L 1-5; and S 2, 3 (Figure 1 and 2). The lumbo-sacral area is most commonly involved and is characterized by a painful back upon arising in the morning (Figure 3). The backache gradually disappears during the days

activity. This gradually diminishing backache with exercise is characteristic of prostatic backache as compared to the gradually increasing backache with activity of orthopedic origin. Other principal sites of pain are in the perineum, rectum, scrotum, inguinal or suprapubic areas, flank and epididymal region (Figure 2). The life history of this pain is that of gradual onset and final nagging persistence.

The *urinary group* of prostatic symptoms are most commonly that of urinary urgency, frequency, tenesmus, strangury and pain. Urinary difficulty and dribbling are most common when the prostatic infection is associated with prostatic hyperplasia. In this latter group the urinary infection is associated with some degree of cystitis and it may occur in conjunction with a secondary pyelonephritis. The symptoms are those of a posterior urethritis which in this specific instance is secondary to a urinary tract infection and thus the prostatitis plays a secondary role. However, it must be considered in outlining therapy for these patients that our attention must be directed toward the prostate and urinary tract simultaneously if any success is to be anticipated.

In a moderate percentage of patients with chornic prostatoseminal vesiculitis the presenting symptom is a urethral discharge. The patient usually relates that he has noticed a scant urethral discharge which is either white or clear in color and is most commonly seen in the morning or after the urethra has been at rest without the passage of urine for several hours. This discharge may be sufficiently profuse to soil the night clothes or only so scant as to note an adhesiveness of the urethral meatal lips. There may or may not be an associated prostatorrhea. The prostatic infection is most often of systemic origin and the prostate gradually becomes distended with prostatic fluid which spills into the posterior urethra and finally into the anterior urethra where it may cause an irritation of the urethral glands and a resultant urethral discharge. The discharge then is urethral in origin and secondary to prostatic pathology. These patients must be relieved of their prostatic pathology in order to free them of their urethral discharge. Local treatment without ade-

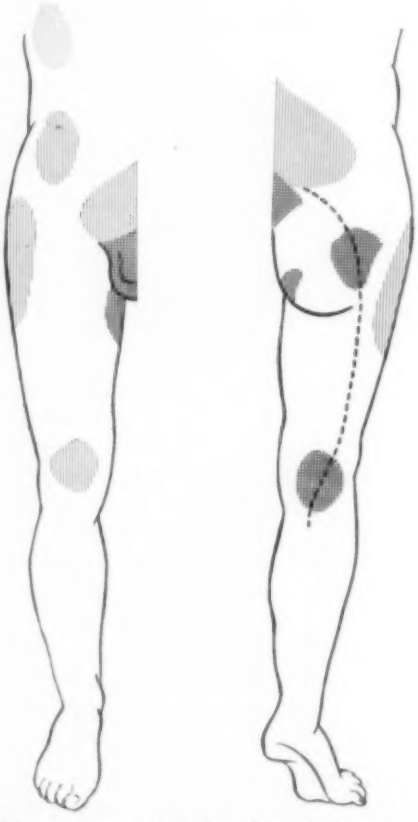


Fig. 2. Areas of referred prostatic pain

quate therapy to provide good prostatic drainage is valueless. So often these patients have been given long courses of urethral therapy, antibiotic therapy or sufonamides without relief that when seen by a physician who appreciates the problem the infection in the urethra has made such inroads that successful alleviation of the urethral discharge may tax the ingenuity of the physician and the loyalty of the patient. It is always difficult to explain to the patient that his urethral discharge is secondary to prostatic infection since he believes himself to be free of prostatic symptoms and is concerned only with the obvious and disturbing urethral discharge. It is this group of patients that are the most difficult group to manage unless first convinced of the efficacy of the therapeutic prostatic approach.

In conclusion it may be said, that the symptoms of prostatoseminal vesiculitis may not follow a similar pattern, but the symptom complex is easily reconstructed if the source of infection or focal point of infection is subjectively interpreted.

Sexual symptoms are not an uncommon accompaniment of chronic prostatoseminal vesiculitis. The symptoms may be that of impotence or sterility. These symptoms may or may not be entirely alleviated by treatment.

Insofar as impotence is concerned that may manifest itself by a gradual onset or may occur in the form of an ever increasing ejaculatio praecox. This symptom often occurs between 40 and 50 years of age and the symptom is disregarded since the patient is quite satisfied that his sexual dimunition is the result of age and not until the impotence approaches totality does he become concerned.

Sterility may become evident only at the time of an investigation of the ejaculate. If prostatic in origin it is usually associated with a marked amount of pus in the prostatic fluid or ejaculate. It is to be remembered furthermore that the palpatory findings of the prostate need not assume a proportional degree of disease when compared to the degree of oligospermia. It is important to consider every male sterility problem as due to prostatitis until disproven.

Diagnosis In *acute prostatoseminal vesiculitis* the afflicted patient may present either local or systemic manifestations or both. The systemic signs are those of infection as manifest by fever and chills. The local sign being that of an excruciatingly tender prostate and if an abscess has developed an area of fluctuation is evident. The laboratory findings are usually limited to an abnormal hemogram which demonstrates a markedly elevated total white blood cells count with a marked leukocytosis. A typical count is that of more than 13,000 white blood cells with leukocyte 90 per cent polymorphonuclear cells. The urine in these patients is often normal unless some of the prostatic infection is draining into the posterior urethra or bladder. As a general rule in the early phases of an acute prostatic abscess there is no drainage since all the ducts emptying into the posterior urethra are closed by edema of the acutely inflamed prostate. If there is an abscess formation and drainage into the posterior urethra pus and pus shreds may be found on microscopic or even gross examination of the urine.

Chronic prostatitis of non-tuberculous origin is diagnosed by a combination of prostatic palpation plus examination

microscopically of the prostatic secretion and the patient's history.

The three typical types of chronic prostatitis as demonstrated by rectal palpation are: (1) an irregular firm gland, (2) a large soft boggy spongy gland and (3) the small firm fibrous gland.

The irregularly firm gland presents to the palpating finger the finding of a prostate that is normal or larger than normal in size and the areas of normal prostatic consistency are separated by islands of increased firmness. The firm or hardened areas differ from those characteristic of prostatic cancer in that they are less discrete and more often multiple whereas cancer tends to present one or two pebble-like hard areas and the remainder of the gland is of normal consistency. The differential diagnosis of chronic prostatitis and carcinoma of the prostate is often difficult and actual prostatic biopsy must be used for positive diagnosis.

The boggy gland is one that presents to the palpating finger a gland that is usually larger than normal which is extremely soft and spongy or softly cystic. As the finger is pressed on the gland it is obvious that it is being decompressed and thus immediately the gland becomes less boggy and smaller. In this condition one finds that great quantities of prostatic fluid can be expressed and in following these patients the gland gradually becomes smaller, less tender and the quantity of prostatic fluid diminishes and loses much of its pus as the gland assumes its normal or near normal size and consistency. These patients seldom have subjective evidence of any active prostatic infection. It is a situation of inadequate prostatic drainage rather than of infection.

Fig. 3. Early morning prostatic backache.

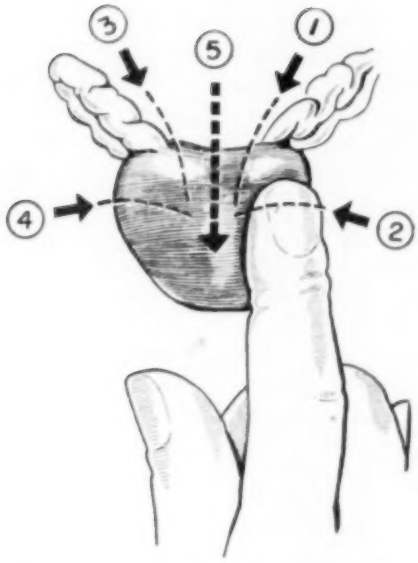


Fig. 4. Method of prostatic massage.

The third type or fibrous prostatitis is a definite entity which responds slowly to treatment and characteristically the gland is smaller than normal and is extremely hard so that prostatic massage at first seems to be a valueless procedure. It is this group that gives us therapeutically our greatest problem since this type of prostatic infection is extremely resistant to any treatment and the infection is usually inactive and has long been displaced by heavy scarring.

The general diagnostic aspects of chronic prostatitis are those of a usually, normal blood count with no particular change in the polymorphonuclear leukocyte percentage. The urine is normal except for the first glass which shows the characteristic short comma type shreds of posterior urethral origin. An x-ray of the prostatic area must always be included in the examination of these patients to rule out the possibility of prostatic calculi which may be the factor responsible for the continued recurrence of prostatic infection.

Treatment The treatment of acute prostatitis is dependent upon medication while in the instance of chronic prostatitis local measures are more useful. In short, acute prostatitis is a problem of infection while chronic prostatitis is primarily a disturbance of normal prostatic drainage.

In *acute prostatitis* the most common bacterial agent is the coccal group (Staphylococcus albus and Streptococcus viridans) and the next most frequent is the colon group. It is not unusual for the acutely inflamed prostate to harbor a mixed infection. Hence, penicillin and streptomycin simultaneously yield the most satisfactory results therapeutically. Prostatic massage is avoided until the the acute phase of the disease has subsided and then the therapy of chronic prostatitis superimposed on the antibiotic therapy.

In *chronic prostatitis* or in subsiding acute prostatitis the treatment is divided into three main considerations: (1) prostatic massage, (2) perineal heat and (3) sexual intercourse.

Prostatic massage is well known to all physicians and still it is one of the most poorly executed procedures. A satisfactory massage must effect prostatic drainage and be as painless as possible. A properly executed massage utilizes continued firm pressure through all the strokes over the prostate and seminal vesicles. The pressure strokes over the prostate during massage are dictated by anatomical distribution of the prostatic and seminal ducts. The massage is directed toward bringing the seminal and prostatic fluid toward the mid-line or posterior urethra and the

last stroke empties the posterior urethra into the anterior urethra (Figure 4). The course of the prostatitis is followed by observing the number of pus cells in the prostatic fluid under the microscope. I personally use methylene blue stain and count the pus cells in each oil immersion field. However, a fresh specimen may be observed under the high power of the microscope depending upon the preference of the practitioner. The important consideration is that the massage produced specimen is observed at the time of treatment so that an accurate index of therapeutic efficiency can be observed. Normally prostatic fluid reveals 5 or less pus cells per oil immersion field and in a previously infected gland less than 10 cells is an acceptable normal.

Perineal heat in the form of hot sitz baths is a most useful therapeutic adjunct. The patient is instructed to sit in hot water, well above the umbilicus, for 5 or 10 minutes once or twice daily and to add hot water as tolerated. It is important not to permit the patient to remain in such a bath too long since it is often found extremely weakening particularly to a patient already suffering a variable degree of lassitude.

Occasionally when the posterior urethritis is somewhat irritating during voiding one of the azo dye preparations is helpful since these drugs act as urinary tract sedatives (i.e., Serenium and Pyridium). Antispasmotics are useful to alleviate any accompanying vesical spasm.

Sexual intercourse is a most important consideration in the therapy of chronic prostatitis. Certainly this method of obtaining prostatic drainage is far superior to massage and prostatic massage must never be considered more than an adjunct to sexual intercourse.

Usually as the prostatitis clears so does the secondary anterior urethritis and the associated urethral discharge. In less than 5 percent of these patients with urethral discharge there is no improvement. Most of these patients can be relieved with the use of urethral injection of 0.5 percent protargol which is retained in the urethra for at least 5 minutes twice daily. Those rare individuals that still fail will in all probability be in need of focal fulguration of the individual infected gland and obstructed anterior urethral gland or glands. This latter procedure demands special urological instruments and is infrequent enough to be without significance statistically.

The surgical management of prostatitis, in addition to the above mentioned fulguration of infected urethral glands, consists of seminal vesicle lavage, resection of a contracted vesical neck, prostatotomy for abscess of the prostate, urethral meatotomy in the event of inadequate urethral drainage and on rare occasions a total prostatectomy where continued prostatic infection persists.

The treatment of prostatitis may be summarized as follows:

I. Medical

1. Antiboitics (penicillin + sulfonamides or penicillin + streptomycin) for acute infections.
2. Urinary tract sedatives (azo dyes or sandalwood oil) for dysuria, urgency or strangury.
3. Perineal heat (hot sitz baths).
4. Prostatic massage at 5 to 7 day intervals.
5. Sexual intercourse for prostatic drainage.

II. Surgical

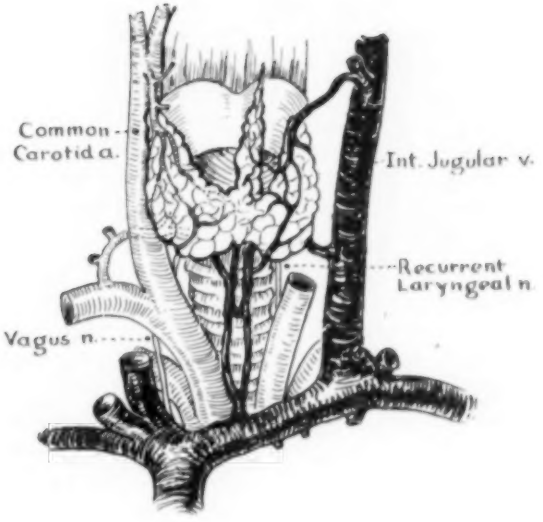
1. Fulguration of urethral glands.
2. Seminal vesicle lavage.
3. Urethral meatotomy to afford better urethral drainage.
4. Transurethral resection of the vesical neck in fibrous contractures.
5. Prostatotomy in acute prostatic infections with abscess formation.
6. Total prostatectomy in rare instances of persistent infection.

Summary

The subject of prostatitis is discussed with reference to its initial and late manifestations. The treatment is outlined and its fundamental principles emphasized.

301 Heyburn Building.

Clini-Clipping



Blood and nerve supply of the thyroid gland.

The Importance of Early Treatment of Squint in Childhood

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New York, N.Y.

There are six muscles which move the eyeball, 4 recti and 2 obliques. The 4 recti and superior oblique have their origin at the circumference of the optic foramen. The inferior oblique has its origin at the inner or nasal margin of the orbit.

All the muscles are inserted into the sclera at various distances from the margin of the cornea (limbus). These muscles are sheathed by Tenon's capsule whose prolongations help to fix the muscles in each place. The six extrinsic muscles rotate the eyeball around vertical, horizontal and anterior-posterior axes. They are supplied by the 3, 4 and 6 nerves. The movements of the eyeball can be compared to a ball and socket joint. The eyeball is elevated by the superior rectus and inferior oblique, and depressed by the inferior rectus and superior oblique; abduction is effected by the external rectus, and adduction by the internal rectus. These are the main actions of the muscles. Both eyes move simultaneously and the movements are regulated by centers, which innervate these muscles. In each movement of the eyes, several muscles of each eye act simultaneously, but on movement in any cardinal direction, one muscle acts predominantly in that particular direction.

Squint or strabismus is a condition when one eye deviates on focusing at a given point. Normally fixation is maintained on any given point, with both eyes at the same time. In squint, however, binocular fixation is impossible.

There are two broad classifications of squint.

A—Nonparalytic, Concomitant (alternating) when the amount of deviation is the same in all positions of gaze, yet the action of the individual muscle of each eye is perfectly normal.

B—Paralytic, Nonconcomitant, when the amount of deviation is not the same in all directions. There is limitation of movement in the direction of the paralyzed muscle. The latter is the result of paresis (weakness) or complete paralysis producing loss of function of one or more of the ocular muscles.

The degree of squint is greatest in the field of action of the paretic muscle. The classification of squint can be further broken down into:

From the New York Medical College.

a—Convergent (Esotropia) The eyeball turns in.

b—Divergent (Exotropia) The eyeball turns out.

c—Vertical (Hypertropia) The eyeball is elevated.

When one eye deviates constantly and the other eye fixes, a Monocular Squint is present. When each eye takes turns in fixing on a given point, it is called an Alternating Squint.

The Etiology of Paralytic Squint

Central lesions where the cause is situated in the nerve tract from the cerebral cortex (nuclei) to the muscle itself, or from the brain into the orbit. This could be caused by a hemorrhage or exudate, trauma, neoplasm, encephalitis, acute infectious diseases such as, diphtheria, influenza, or periostitis. In older people syphilis, tabes, alcohol, ptomaine poisoning, diabetes, exophthalmic goiter and sinus disease could also be involved in the etiology of paralytic squint.

The etiology of nonparalytic squint is abnormal supranuclear innervation leading to a disproportion between the power of convergence and divergence. An overaction of convergence leads to a weakening of divergence. They actually oppose each other. Also a factor is when there is a great error of refraction or a considerable difference in refractive errors between both eyes.

Double vision is probably always present in the very young, in the monocular type, but direct history cannot be elicited. The mother usually gives the information that the child is awkward, and frequently bumps into objects in a room, and may acquire the habit of closing one eye, or learns to suppress or ignore the false image to avoid the annoyance of diplopia. As the result of the squint, fusion of images is faulty or entirely lost.

Both eyes function in vision and make adjustments involuntarily, so that the image of the object is focused on each macula and then the two images are fused into a single mental perception, which produces binocular single vision.

An eye which turns (in or out, up or down) does not function normally. Images are not focused on the retina properly. If this occurs in early childhood there results a very definite interference in the development of central vision so that vision steadily becomes badly impaired from nonuse in the squinting eye, until vision is *almost completely lost.*

Frequently there is an error of refraction and glasses are necessary. This error can be discovered by an ophthalmologist by simple tests, without the aid of any charts for distance in children as young as prekindergarten age. If glasses are necessary to correct the error of refraction, they will aid greatly in improving vision and straightening the eyes.

In monocular strabismus (or squint) if there is little or no error of refraction other means are employed to stimulate vision in the turned eye, such as occlusion, or patching the turned eye for months at a time, or by paralyzing accommodation of that eye with the use of atropine sulfate for several months. These simple measures stimulate and develop vision in the *turned* eye, and actually force that eye to see. To achieve results, a great deal of cooperation and patience by the parent is necessary.

But all efforts are worth a try in

giving useful vision to an eye which may ultimately become blind and useless without any treatment.

Surgery and orthoptics are employed after all simple measures have failed.

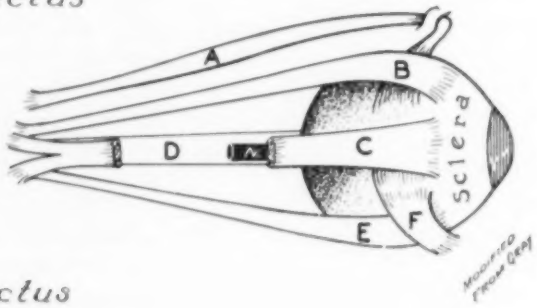
I am frequently amazed when parents tell me that, when they bring their children to the pediatrician for their usual checkup, and call the physician's attention to an eye that turns, they are in many instances told that the child, in time, will outgrow the squint, and advised to leave it alone. Not only is this very poor advice, but it is unscientific. Even if the eye should become straighter as the child grows older, and this may occur in some instances without any treatment, it will be at the expense of vision, so that ultimately there will be great impairment, or even complete loss of vision in the turned eye. With simple measures, even in older children, vision in the turned eye can be saved.

The better advice would be to seek the aid of a competent ophthalmologist who will place the child under a proper regimen.

We know that central vision (macula) can be stimulated in children under four years of age. After that age, it is a question as to what can be done. Although I have seen excellent results in children, 12 years of age and older, who have been treated with occlusion and atropine of the straight eye (the eye with the good vision) vision from 20/200, Snellen Chart, improved to 20/30 or better. But these cases are not very common and require a great deal of cooperation by the parent, the child and teachers. Many children fre-

Lateral view showing muscles of right eye

A- *Superior Oblique*
B- *Superior Rectus*
C- *Lateral Rectus*



D- *Medial Rectus*
E- *Inferior Rectus*
F- *Inferior Oblique*

N- Optic nerve

quently memorize charts in the course of a routine school checkup. This should be guarded against. Cases of poor vision in one eye can be easily overlooked by routine school checkups.

Frequently a child grows into adult life without being aware that vision in one eye had been lost. It is only when an injury occurs to the good eye and requires that eye to be patched, that there is a sudden realization of poor vision in the opposite eye; or as frequently happens, vision is checked for an automobile license or a new job, and poor vision in one eye is discovered.

Summary

We must use every means at our command to help stimulate and restore vision in an eye that turns in or out. No infant is too young to start treatment. Early recognition and treatment by an ophthalmologist will give the child a useful eye. The advice of waiting until the child may outgrow the squint is unscientific and frequently leads to loss of vision in the turned eye. Such advice should be condemned.

65 Central Park West.

AN EXERCISE IN DIAGNOSIS— THE CASE REPORTS

IN addition to our regular quota of original articles, "Refresher" articles and departments, this issue, and every issue, contains selected Case Reports from the Clinico-Pathological Conference at New York University-Bellevue Medical Center. You will find them on pages 671-675. We recommend these studies as interesting and stimulating.

The Medical Treatment of Chronic Pancreatitis

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The medical treatment of chronic pancreatitis, if carefully planned, can achieve very satisfactory results in many cases. Only when attention is given to the sequence of changes which often follow in the wake of this disease, can a rational basis for adequate therapy be formulated. Accordingly, an outline of these alterations is presented below, and a description then follows.

1. Diminution of external pancreatic secretion delivered to the duodenum (amylase, lipase, trypsin, etc.)
2. Nutritional deficiences.
3. Reduction in internal secretion of pancreas and development of diabetes—30 to 35% of the cases.
4. Fatty infiltration of the liver.
5. Pain.

1 and 2. Diminished External Pancreatic Secretion and Nutritional Deficiencies. These two conditions are grouped together because they are best considered as one problem. As the result of acinar and ductal disease, the normal quantity of enzymatic secretions can no longer reach the duodenum. This in turn leads to impairment of protein, fat and carbohydrate digestion. The improper preparation of these substances interferes with the process of their transport across the intestinal barrier. The same disturbances result in a significant retardation in absorption of vitamins and minerals. Those chiefly involved are the fat-soluble vitamins A, D and K, but all the components of the vitamin B complex are also restricted to a major degree.

Minerals are affected in a like manner by these enzymatic and absorptive derangements, and the two chiefly affected are calcium and iron. It becomes apparent then, that a large number of vital substances are prevented from reaching the tissues throughout the body which need them for maintenance of a healthy state. Finally, diarrhea, often present to some extent, results in further depletion of valuable nutrients, fluid and electrolyte. A complete program therefore must take full cognizance of all these changes if it is to achieve any degree of success.

A low roughage diet divided into small frequent meals is the most suitable for these patients. Proteins should be given liberally in an effort to counteract the tendency to a negative nitrogen balance. Approximately 150 grams daily will usually achieve this objective. Carbohydrates are also required in large amounts to reach the proper caloric level. The optimum range varies between 350 and 450 grams. Fats, on the other hand, are poorly utilized by these

patients and often promote increasing diarrhea; so restriction to about 70 grams is desirable. All alcoholic beverages and spices are interdicted.

Vitamin supplements must be prescribed liberally, the most important being vitamins A and D. An average daily dose of 20,000 units of vitamin A and 5000 units of vitamin D should suffice. The administration of vitamin K is less important and the dosage can be determined by occasionally testing the prothrombin time. All of the factors of vitamin B are needed in abundance, and it is best to use a vitamin B complex preparation by the oral route. Where larger amounts are considered necessary, 2 cc. of crude liver hypodermically, three times a week, will give a substantial boost. The tendency for patients with chronic pancreatitis to develop mineral deficiencies calls for the use of iron and calcium in amounts according to the individual needs of each case.

3. Substitution Therapy to make up for the decrease in pancreatic enzymes should be given a trial in all cases. Some patients derive considerable help from these substances while others are not benefited at all. The preparations which are available have been increased in concentration to an appreciable extent during the past few years. Holadin grains V to XX, T.I.D., or Viokase (a defatted dessicated concentrate) drachm one of the powder, or five tablets T.I.D. provide ample amounts of these substances. Emulsifying agents such as Tween 80 or polysorbate 80 are often prescribed but seem to be of little value. Papain, a derivative of unripe papaya, acts as a proteolytic agent and is therefore capable of improving the utilization of protein. In addition to the reduction of creatorrhea it often has a similar effect on the steatorrhea. The optimum dose of this medication is 2% by weight of the patient's protein intake.

4. Diminished Internal Secretion and the development of diabetes mellitus occurs in about 30 to 35% of patients with chronic pancreatitis. Insulin, of course, is the treatment. Some modification in the allowance of carbohydrate may have to be made in these cases.

5. Fatty Infiltration of the Liver. This is not an uncommon result of chronic pancreatitis and it develops because of the loss of lipotropic substances, which are ordinarily elaborated by the normal pancreas. The presence of this condition is suspected by the finding of an enlarged smooth liver on physical examination, or is determined by means of a liver biopsy performed through the external route or at the time of a laparotomy. Lipotropic agents such as choline or methionine in doses of 2 to 4 grams T.I.D. are indicated whenever the liver is affected in this manner.

6. Pain is a frequent concomitant of chronic pancreatic disease, and its control can often tax the physician's ingenuity to the utmost. Opiates are to be avoided, if at all possible, because of their known spasmogenic effect on the pancreatic ducts with resulting increased intraductal pressure. However, when pain is severe, one of these drugs is necessary for relief and Demerol is one of the least objectionable in this group. It seems to produce less spasm of the pancreatic ducts. Whenever possible it should be used at least 4 hours after a meal when pancreatic secretion is at a low ebb. An anti-cholinergic drug, however, should always be administered

in conjunction with the Demerol. At times the ganglionic blockaders may bring relief without the use of narcotics. Vagal blocking produces beneficial results by diminishing both the gastric and the pancreatic secretions. They may also be effective by means of the reduc tion of muscular spasm, particularly of the sphincter of Oddi.

Occasionally injection of a nerve trunk or ganglion becomes necessary to achieve more prolonged relief from pain. Splanchnic block with 1% procaine or else paravertebral injection from T6 to T10, unilaterally or bilaterally, have often proven very beneficial. However, more recently, fractional epidural block has been introduced with very favorable results. It has the advantage of effecting bilateral anaesthesia, and since the catheter may be threaded into position and left there for up to a week, a prolonged effect can be achieved. 10 to 20 cc. of a 1% procaine solution is used and the injection may be repeated at 18 to 24 hour intervals. The chief objection to this method is that it requires an expert anaesthesiologist for its administration.

Many patients will remain reasonably well on the program just described. However some fail to respond and then one must resort to surgery. The indications for surgical intervention are uncontrolled pain, the development of a fluid collection or the appearance of jaundice.

Summary

A program for the medical management of chronic pancreatitis has been described. It consists of a suitable diet plus the addition of vitamins and minerals. Attention has also been directed to the use of substitution therapy for replacement of the diminished pancreatic secretions. The various methods of dealing with the problem of pain have been considered, and lastly the indications for surgery presented.

Tabor Medical Building
York and Tabor Roads.

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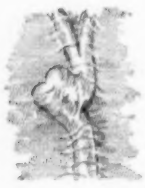
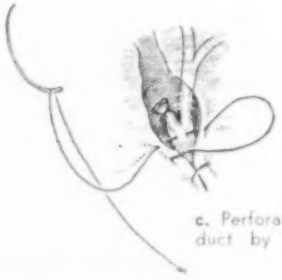


a. Excision of part of common duct.

b. Ligation of common duct.



c. Perforation of duct by suture.

Atherosclerosis

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Tucson, Ariz.

The atherosclerotic process exhibits deposits of lipid material in the depths of the intima of the arteries. This is basic to the vast majority of cases of insufficiency and thrombosis of the coronary arteries, of myocardial infarction and, probably, what is called "chronic myocarditis" and "myocardial degeneration."

This condition is the leading health problem of the adult male in this country. Because of defects in the diagnostic methods of the past, it is not known whether there is any increase in the number of cases, but it is clear, however, that no progress is shown in its control.

The conditions become more prominent as age advances; however, these conditions present themselves at early ages—not rare in the thirties, or even earlier. "Arterio-sclerotic heart disease" accounted for 35.5% of all male non-violent deaths in the age group of 40 to 60 years as shown by 1949 United States statistics. Added "Myocardial degeneration" raises the percentage to 38.5%. This does not include deaths ascribed to hypertension or other cardiovascular conditions, where undoubtedly atherosclerosis played a major cause. Comparably, the corresponding mortality rate as recorded for females is: age 40 to 49—22%; 50 through 59—27%.

The condition can present itself in any artery. Clinically, the major concern involves the coronary artery system. Relative ischemia of the heart muscles is induced by atheromatous deposits and associated connective tissue, or by thrombosis resulting either from circulatory stasis or from ulceration at the point where the lipid deposits have interfered with nourishment of the heart muscles.

To date, no lipotropic agent has been found to reverse atheromatous changes in man, in spite of the demonstration of such changes in some animals. Research continues in this direction.

Chemical analysis of the atheromata show them to consist of 40 to 70% or more of cholesterol (and esters). The cholesterol probably is derived from the blood, where it is second to the plasma proteins. Cholesterol is combined with proteins and lipoids in the bloodplasma-lipo-proteins. This process suggests that cholesterol plays a role of transforming these lipo-proteins to transport blood fats which otherwise would be insoluble.

The manner of deposition of cholesterol in the arterial wall is not known. It is probably produced by a local stress, produced by blood turbulence. It is significant that only cholesterol, with a

small portion of lipoid, is deposited, not lipo-proteins—the "giant molecule".

Research demonstrates that increase in dietary cholesterol in man does not produce atherosclerosis, although such is true in rabbits and chickens. This demonstrates a system of regulation of the blood cholesterol intake.

Man synthesizes cholesterol. It is proved that many tissues take part in this process, but the liver is the most important system. It is also shown that an exogenous supply of cholesterol may enter the blood directly from the liver, but the most probable route is by the bile, where it is reabsorbed farther down the intestines. The available cholesterol at this source is 10 to 20 gms. daily. This exceeds many times what may be obtained from a dietary source. Thus, it is shown that those factors which effect the supply of cholesterol in the bile, or its subsequent absorption, are undoubtedly of great importance in the development of atherosclerosis.

Increase in the concentration of cholesterol in blood plasma is an important factor in the production of atherogenesis in man, as in other animals. In those clinical conditions as diabetes and nephrosis, where the blood cholesterol is elevated, there is a very high incidence and severity of atherosclerosis. In those individuals with definite clinical coronary disease, the blood cholesterol is higher than in clinically healthy persons otherwise comparable. However, this does prove that predictions of atherogenesis can be made by the simple process of cholesterol determination. There are individual variations. Studies continue to find a better indicator, cholesterol/phospho-lipo proteins, concentrations of certain lipo-proteins (S 10-20, S 12-20, and others). None of these is better than the cholesterol indicator. All of these indicators are significant in groups, but are of no value as to the individual in diagnosis and prognosis. Although the studies of blood chemicals are of value in statistical and epidemiological studies, it is probable that there are other factors in the production of atherosclerosis than what the blood chemical may be at any given time, or in any single blood sample.

While it has been stated here that the diet is not an important factor in the concentration of blood cholesterol, the diet is an important influence in other characteristics. In strict reducing diets, blood cholesterol concentration tends to fall, and very low values of blood cholesterol indicate, or characterize, starving populations.

It is observed that healthy men in this country, sampled from the urban population, show an increasing concentration of cholesterol and related substances as they progress from youth to the fifties. This parallels the age trend in the development of atherosclerosis among these men. In other countries, with low fat diets, as in Italy, Spain, and parts of Africa, this age trend in the blood seems to differ. In the young in those countries, there is no significant difference. However, in the ages beyond 50, the blood cholesterol does not tend to rise, as in America, England, and Denmark. In Italy and Spain, the usual diets consist of only 50 to 60% as much fat as in the United States. However, in the wealthy in Spain, whose diets approach American diets in fats, their blood cholesterol concentrations simulate the American. There is little correlation between obesity and blood cholesterol. There is room to continue the study of a program to prevent atherosclerosis.

Any condition causing acute arterial occlusion may cause chronic arterial occlusion.

The most common of the chronic arterial occulsions is arteriosclerosis obliterans. Next is Thromboangiitis obliterans (Buerger's disease). Essential Thrombophilia and polycythemia vera may cause intra-arterial clotting, and end in chronic occlusion.

The differential diagnosis of arteriosclerosis and thromboangiitis obliterans is shown in the chart which is presented below.

Distinguishing Features	*Thrombo-angiitis Obliterans*	*Arteriosclerosis Obliterans*
Age at onset	almost always less than 50	Almost always more than 40
Sex	99% males	83% males
Involvement of hands	40% of cases	Rare
Superficial Thrombophlebitis	40% of cases	Never
Hypertension	Rare in early years	35% of cases
Diabetis Mellitus	Rare in early years	20% of cases
Plasma lipoids	Usually normal	Frequently elevated in younger patients

Polycythemia vera may be considered when the hemoglogin is 16gms. or higher, or if the erythrocyte count is more than 5½ millions. A hematocrit determination and blood volume should be done. In patients with this condition intra-arterial occlusion may develop from intra-arterial coagulation of the blood. This may occur in a normal artery or at site of an atheroma.

The complete picture of essential thrombophilia is not known. However, one or more of the following may be found in this condition.

1. Increase in the number of blood platelets.
2. Hyperglobulinemia.
3. Hyperfibrinogenemia.
4. Decreased heparin tolerance.
5. Increase in number of bone marrow megakaryocytes.

Arteriosclerosis obliterans affects medjum and large size arteries both in patchy and diffuse manner. The histological trend of this condition is atheroma, medial degeneration, and a non cellular thrombus.

Thrombo-angiitis obliterans is a segmental inflammatory obliterative disease of the arteries and veins of the extremities, and rarely the viscera. The diagnostic histologic triad of this disease is an inflammatory process in the media and adventitia, absence of medial degeneration, and a cellular thrombus.

The diagnosis of all arterial occlu-

sions presents the symptoms of ischemia. The degree of occlusion determines the severity of the symptoms. The symptoms are claudication, coldness, ischemic neuropathy, diminished or absent peripheral pulsation, infection, ulceration, and gangrene.

The increase in arterial insufficiency can be demonstrated by the elevation-dependency test. The patient in the supine position, the legs are elevated 45 degrees or more for 2 minutes. The degree of pallor produced indicates the severity of ischemia. Then patient sits up, and the length of time required for the pedal veins to fill is measured. In normal arterial flow, they require 10 to 20 seconds, whereas delay in the return of the pink color to the extremity is significant.

The principles of treatment are:

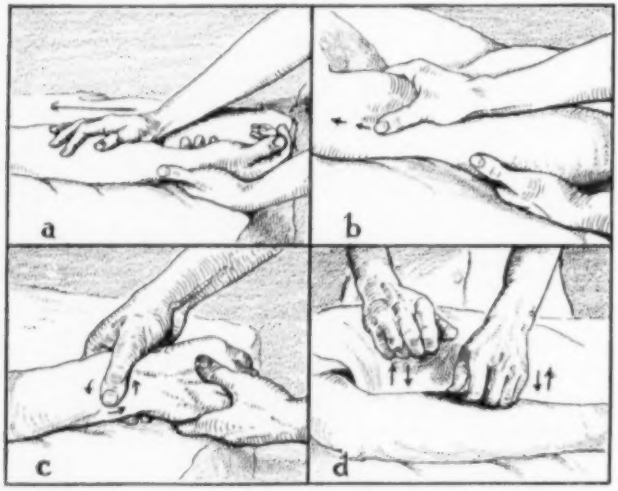
1. Arrest the progress of the disease.
2. Dilate uninvolved arteries.
3. Increase circulation mechanically.
4. Relieve pain.
5. Instruct in prophylaxis against injury of ischemic tissues.
6. Treat ulceration and gangrene: cessation of the use of tobacco; diet low in animal fat.

Priscoline, Roniacol, Hydergine have been proved non-effective. They can reduce vasospasm, but in chronic occlusion they do not relieve.

Lumbar sympathectomy causes increased blood flow to the skin, by dilating the small arteries which supply the skin.

168 West Broadway

Clini-Clipping



Massage Movements

a. Effleurage or light stroking movements to the skin; b. Petrissage or deep movements over muscles which can be kneaded, rolled and squeezed; c. Friction or deep movements in which the skin is made to move over the underlying tissues; d. Tapotement or percussion movements in which the part is lightly and rapidly struck with the back or side of the hand and skin so as to permit free movements.

Everyday Problems in Nose and Throat Work

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The general practioner is occasionally called upon to treat troublesome nose and throat cases. There are two complications that come under this category which appear most frequently and are extremely annoying to the physician who must treat them. The first problem is that of nasal hemorrhage and the second pertains to post-tonsillar hemorrhage which is less frequent but equally distressing to the physician as well as the patient.

Nasal Hemorrhage is a common, everyday occurrence in all age groups. It is usually treated by the general practitioner, in his private practice, and if he is unable to cope with these problems he very often refers this type of case to the otolaryngologist. However, in many small communities the services of an otolaryngolist are not available and the general practitioner himself must assume the entire responsibility of treating nasal hemorrhage. It is not in the province of this paper to discuss the various causes of the many types of epistaxis, but rather to discuss a practical method of caring for the more serious cases. Hemorrhages occurring in the anterior portion of the nose constitute about ninety percent of all nasal bleeding and this is most fortunate because hemorrhages in this area, which is referred to as Little's area on the septum, are very easily accessible for cauterization. Even though the bleeding may be very profuse, treatment is usually a very simple one and the situation can be taken care of without too much difficulty. General practitioners may attempt to control nasal hemorrhages by such irrational methods as external packing applied to the nasal orifices and cold compresses which of course are of no avail. Others pack the nose with improper materials and oversized packing. Methods such as the application and introduction of cauterizing agents, such as Monsel's solution and tannic acid, sometimes stop the nasal bleeding but they produce definite damage to the nasal mucosa which is severely burnt by these chemicals. There is always a great possibility of a slough from the tissues involved which will be complicated by further hemorrhages. Sometimes large four by four sponges are forcibly introduced into the anterior nasal cavity in efforts to check a hemorrhage. The introduction of these large packs traumatizes the mucous membrane and when the packing is removed invariably the hemorrhage will again become evident. The proper use of the nasal speculum and a headmirror can be easily mastered and it is a must in

the treatment of epistaxis. Since many nasal hemorrhages are treated in the home by the physician, it is impossible to resort to such aids as a nasal cautery and nasal suction. Most bleeding in the anterior section of the nose can be easily taken care of if the physician adopts but three helpful aids, namely: ten percent cocaine solution, silver nitrate stick applicators and one half inch vaseline gauze packing. A ten percent cocaine solution is invaluable in the treatment of all nasal hemorrhages. This solution shrinks the nasal mucous membrane, thus giving better exposure, and also produces some degree of anesthesia which is most appreciated by the patient. The minute the nasal speculum is introduced in the nose the physician can, in most instances, readily detect that the bleeding is either of anterior or posterior origin. If the hemorrhage is of anterior origin, then the first step to control it is to take a pledget of cotton well saturated in a ten percent cocaine solution and apply this pledget to the site of hemorrhage and then hold it tightly in place with the fingers. This should be held in place for three or four minutes, then when the cotton pledget is removed in many instances, the hemorrhage will be under control and the patient will have septal anesthesia. By means of a wooden applicator with silver nitrate tip on the end, the area of bleeding can be lightly touched, care being taken to avoid burning the surrounding tissues. In many instances, this procedure alone will suffice to control hemorrhages resulting from ruptured blood vessels on the anterior portion of the nasal septum. If the bleeding is profuse and cannot be controlled by pressure and simple cautery, then anterior packing must be carried out. This is most effectively done by the use of one-half inch gauze soaked in vaseline. This is not available on the market but can be very easily made up by taking a test tube and putting a half inch of vaseline in the bottom and filling the remainder of the test tube with one-half inch selvage gauze, putting a stopper in the top of the test tube, taping it down and then having it autoclaved. The heat will melt the vaseline and it will permeate the gauze, making an ideal nasal packing. Using this material, which can be carried in the medical bag, the anterior portion of the nose can be tightly packed in an over and under fashion sufficiently to control hemorrhage. This packing is allowed to stay in place for twenty-four hours.

Posterior Hemorrhages, which fortunately are in the minority, cannot be so easily managed and in most instances are best taken care of in the hospital because nasal suction is a great help in removing the blood for better visualization. It is often impossible to cauterize posterior nasal hemorrhages because the exact site of bleeding cannot be accurately ascertained. In many cases it is necessary to pack the nose. Packing is preceded by the application of ten percent cocaine to the entire nasal mucosa to produce anesthesia. The same type of vaseline gauze packing is once again used in an over and under manner in the posterior as well as the anterior nasal vestibule until the nose is tightly packed. This oftentimes will control most severe hemorrhages.

Occasionally a posterior nasal hemorrhage may be so severe that it cannot be controlled by nasal packing alone and here a post-nasal pack must be used. This is accomplished by taking a four by four piece of gauze, rolling it up

into a ball and coating it thoroughly with vaseline and then attaching a piece of tape, such as umbilical cord tie, to this gauze in such a manner that about six inches of the tape extends out from the gauze in both directions. A lubricated rubber catheter is now inserted through the nose until it extends downward into the posterior pharynx. The distal end of this rubber tube is grasped in the posterior pharynx and pulled forward out through the mouth. In this procedure care must be taken not to pull the catheter completely through the nasal cavity. To the distal end of the rubber catheter, one end of the tape is now tightly tied and the rubber catheter pulled back up through the nose. In this manner the tampon is pulled up into the nasal pharynx against the posterior nares. The end of the tape which has been drawn through the nose is now firmly attached to the side of the face by means of adhesive tape so that tension will be kept upon the pack. The other end of the tape descending from the post-nasal tampon is drawn out through the mouth and likewise fastened onto the cheek by means of adhesive tape. Next the nose is tightly packed with vaseline gauze so that pressure is applied against the post-nasal pack. This will control the most severe type of hemorrhage. The packing is usually allowed to remain in place for forty-eight hours and then gently removed. The tape extending out through the mouth enables the posterior pack to be removed without any difficulty and the lubrication applied to the tampon itself also facilitates removal.

While it is true that most tonsillectomies throughout the country are carried out by otolaryngologists, a certain percentage of them are performed by the general practitioner and the general surgeon and they are exposed to the same hazard of post-tonsillar hemorrhages which occur in about one percent of all cases. The incidence of secondary hemorrhage following tonsillectomy is not great but the complication occurs with sufficient frequency to warrant the attention of all those who carry out this operative procedure. Primary tonsillar hemorrhage occurs within twenty-four hours after tonsillectomy. This is usually due to incomplete hemostasis during the operation or the slipping of a ligature during violent coughing or vomiting. Secondary hemorrhage takes place usually from three to eight days after the operation often at the time when the slough is separating from the tonsillar fossa. This hemorrhage is said to be a result of necrosis with erosion of the vessel wall. It is absolutely impossible to predict before or during the operation which patients are likely to bleed after operation. Secondary hemorrhages occur no more frequently in a blood coagulation time of eight minutes than with one of four minutes.

In my experience, the pre-operative and post-operative use of coagulants such as ascorbic acid and Vitamin K have some effect on the prevention of operative and post-operative bleeding. I personally prescribe Vitamin K, 5 mgms., three times a day for four or five days pre-operatively and post-operatively in all cases and I think that this is of some value in the prevention of this complication.

The methods of controlling secondary hemorrhage are many and varied. They include blood transfusions, the applications of astringents, coagulants and hemostasis. The incident of hemorrhage

occurs equally distributed among children and adults. The treatment, however, varies distinctly. In adults most often the procedure can be carried out under local anesthesia and many times the gentle removal of the clot itself from the fossa will produce a cessation of the bleeding. If this does not work, the application of cotton sponges applied with pressure against the fossa sometimes will control the bleeding. Often a bleeding point can be controlled by merely touching that point with a silver nitrate stick applicator. If the hemorrhage is so severe that the bleeding cannot be controlled in this manner, then suturing must be resorted to under general anesthesia because hemostasis by means of ties cannot be used because of the friable and necrotic condition of the tissues. It is absolutely impossible to grasp the bleeding point with a hemostat in a post-tonsillar bleeder three or four days following a tonsillectomy. If general anethesia is resorted to, then the condition of the patient at the time must be evaluated with special consideration being given to the amount of blood lost, condition of the pulse, and the blood pressure. If the patient's condition is not satisfactory, then the wisest thing to do is to administer some fresh whole blood prior to any attempts to control the hemorrhage.

When children are so unfortunate as to develop a post-tonsillar hemorrhage it is almost impossible and futile to attempt to control this by means of local measures. Experience dictates that the best policy is to administer a light general anesthetic so that the clots may be fully removed and the degree of bleeding evaluated. If sutures must be resorted to the best suture in my hands is the preparation put out by Davis and Geck called a tonsil suture made of plain catgut attached to a half inch round tonsillar needle. By means of this suture deep stitches may be placed in the tonsil fossa and the bleeding area thoroughly controlled after the knot has been applied. It is very necessary that these sutures be placed deep into the muscle and a large bite of the tonsillar fossa be included because otherwise the sutures will slough off very easily when tying is attempted. This tonsil suture is quite safe to use, the needle is short, the point is round and it is an atraumatic type with the catgut all attached and there is no possibility of losing the needle down in the patient's pharynx.

Summary

In the treatment of nasal hemorrhages, cauterizing agents such as Monsel's solution and tannic acid should be avoided. The preferred procedure is to use cotton saturated in cocaine applied directly to the bleeding point after which minute cauterization is carried out by a fine silver nitrate stick applicator. Posterior hemorrhage can best be controlled by packing the nose tightly with vaseline gauze and, if necessary, resorting to a post-nasal pack. A secondary tonsillar hemorrhage which will occur in a certain percentage of cases in the hands of all operators is best controlled by means of a tonsil suture tightly placed deep within the tonsil fossa under general anesthesia.

177 Main Street

Cardiovascular System in Chronic Anemia

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The myocardium, a wonderful musculature, incessantly active, performing a most stupendous task, reacts profoundly to chronic anemic condiitons. Dyspnea, tachycardia, edema of extremities, anginal pains, palpitation and arrhythmia prevail due to anoxia, simulating cardiovascular disease.

A succinct résumé of histopathologic findings in the heart by many investigators is of convincing importance. Fatty degeneration in pernicious anemia is seen greatest in this organ. It is pale, flabby, and the wall of the left ventricle and papillary muscles may show yellow speckling, which consists of heart muscle fibers where innumerable minute fat globules are arranged in transverse and longitudinal rows.

In a series of autopsies of pernicious anemia, the hearts showed definite hypertrophy or dilatation. They were variously described as soft, flabby, pale brown, or pale red, yellowish red, or muddy yellow in appearance. Six of these hearts weighed 240-300 grams, and five 300-400 grams. Many cases showed fatty infiltration of the endocardial surface, and increase in epicardial fat.

In Cooley's anemia, there was considerable hypertrophy and dilatation of the ventricles. The microscopic study revealed cloudy swelling, fragmentation of the myocardial fibers, indirect cross-striation, hypertrophy of the muscle fibers and moderate perivascular fibrosis.

In hookworm anemia, where the patient died of congestive heart failure, the heart weighed 630 grams, with a moderate hypertrophy and dilatation of all the chambers, widely patent coronaries and hypertrophy of the fibers.

There is an incidence of 76 percent of cardiac hypertrophy in sickle cell anemia. Clinical studies of the size of the heart in chlorosis demonstrated hypertrophy and its disappearance following adequate therapy, as substantiated by x-ray.

Rats whose hemoglobin was below 10 grams per 100 cc. constantly showed hypertrophy, and when it fell to two or three grams, the weight of the heart was found to be three times normal. Histologic changes found in the hearts of anemic patients are comparable to those observed in experimental animals subjected to low oxygen pressures for long periods.

It is evident that even in cases of moderately severe anemia, which do not come to autopsy, there is a frequent

finding of cardiac enlargement in the absence of any of the usual etiological factors of heart disease. This finding is most frequent in cases of severe and prolonged anemia. It may be present at any age, although in the older age groups it is more frequent. That dilatation probably accounts for a great deal of the enlargement noted on physical and roentgen examination is evidenced by the rapidity with which it subsides with relief of the hematological defect. Hypertrophy and degeneration of the myocardium such as demonstrated by pathological studies is, however, probably present in a considerable number of non-fatal instances as shown by the persistence of cardiac enlargement in a significant number of cases. That anginal pain is a manifestation of myocardial ischemia is now well established. Most cases of this syndrome are associated with atheromatous degeneration of the coronary arteries with resultant insufficient blood supply to the heart muscle. That decreased oxygen carrying capacity of the blood may also lead to cardiac pain has been shown by several authors. In Elliot's case there was no demonstrable narrowing of the cardiac vessels so that the anemia was probably the main cause of tissue anoxia. Increased cardiac oxygen consumption associated with increased output may also be a factor. It is also interesting that intermittent claudication which is also considered the result of skeletal muscle ischemia may also be precipitated by the presence of anemia.

In addition to the cardiac hypertrophy and angina changes in the quality of the heart sounds and the presence of murmurs have been frequently found. These are usually blowing and high pitched in quality and were equally frequent in the apical and pulmonic areas. The intensity of such murmurs is related to the duration and the severity of the anemia. Diastolic murmurs have been described only in cases of severe anemia. The presence of these murmurs may be due to cardiac dilatation with resulting valvular incompetency or to decreased viscosity of the blood.

The arterial blood pressure when altered in cases of anemia tends to be in the direction of a reduction in both the systolic and the diastolic readings. Cases following relief may develop appreciable hypertension. In anemia there is an increased pulse pressure. Capillary pulsations in the nail beds are a common feature. The radial pulse is usually full and collapsing. The pulse rate even at rest is elevated in most cases of severe anemia.

Electrocardiographic studies in the presence of chronic anemia, without the evidence of coronary heart disease, showed a flat T, 1-2 a slight depression of the RT 1-2, a prolonged P R interval, left ventricular preponderance and occasionally right ventricular preponderance. More consistent changes are mainly low or inverted T waves and depressed S T segments in the limb leads. The transient character of these electrocardiographic changes indicate that they are not due to irreversible myocardial damage, but caused by myocardial anoxia.

As a result of the reduced oxygen-carrying capacity of the blood in anemia, profound compensatory changes are brought about in the circulatory system. Most important of these is probably the increase in cardiac output. After relief of the anemia, the pulse rate

falls, the mean arterial and diastolic pressures and the peripheral resistance rise and the cardiac output falls.

That anemia can lead to retention of water in the body has been demonstrated. The magnitude of water retention varied inversely with the hemoglobin level. This phenomenon was not due to the lowering of the plasma protein level or to increased venous pressure.

The presence of myocardial damage and anoxemia with the tendency to water retention are certainly factors favorable to the development of heart failure. However, various reports are available, some complete with autopsy reports in which the clinical picture of cardiac failure occurred in the absence of evidence of other causes of heart disease. Tung reported 6 cases exhibiting dyspnea, orthopnea, engorgement of cervical veins, rales at the lung bases, enlarged tender livers, dependent edema and diminished vital capacity. Direct measurement of venous pressures on these patients consistently showed elevated readings. Relief of the anemia lead to the disappearance of all signs and symptoms of heart failure and heart disease. The duration as well as the severity of the anemia seems to be of importance in the development of cardiac insufficiency. Beri-beri heart is also characterized by rapid circulation and may not be accompanied by other manifest deficiency signs such as neuritis.

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Conclusion

There are numerous cardiovascular disturbances in chronic anemia, for the most part related to oxygen deficit. The disturbances include cardiac hypertrophy, fatty infiltration of the cardiac muscle, coronary insufficiency, hemic cardiac murmurs, alteration in systolic and diastolic blood pressure, elevation of the pulse rate, electrocardiographic changes, increased cardiac output, variations in the peripheral blood flow, abnormal water retention and susceptibility to congestive cardiac failure. There is a marked similarity between the symptoms produced by severe anemia and those observed in cardiovascular disease. Often the presence of anemia causes cardiovascular disturbances or aggravates symptoms of cardiovascular disease.

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Removal of Secondary Skull

Subperiosteal Ossification of a Large Cephalohematoma*

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The incidence of cephalohematoma is fortunately not high. Ingram and Hamilton[1] have reported it as 1.66 per cent while Kendall and Woloshin[2] have indicated the more likely higher figure of 2.49 per cent. However, even with an increased occurrence due to more liberal use of forceps which possibly result in minute linear skull fractures[3] the condition is usually of little consequence, as absorption of the blood is usually rapidly accomplished without complication. For this reason it has often been stated that no treatment is necessary for cephalohematoma in the newborn.[4]

It is undoubtedly true that in the majority of cases the subperiosteal blood and calcium salts are absorbed before the actual formation of bone takes place. However, there are instances where the hematoma between periosteum and calvarium is so extensive that a complete bone is developed before the blood is absorbed[4]. In these cases it is more probable that a true linear fracture of the underlying bone has occurred, as the result is identical to that seen in traumatic subperiosteal ossification in older individuals who have torn the periosteum in such areas as the patella, astragalus and the internal lateral ligament of the knee (Pellegrini-Stieda's disease). The new bone formation occurs only within the limits of displaced periostem and it is nothing more than the ossification of a subperiosteal hematoma.[5]

It is interesting to note that when calcification of a cephalohematoma is permitted to continue, it does not do so in the haphazard manner seen in the other areas mentioned, but in the same orderly procession that the true skull beneath it was formed and it is noted that the new calvarium is itself made up of two layers or plates of compact bone with spongy bone and marrow spread between them.

The case reported below is unusual as (1) it is probably the most extensive development of a secondary skull reported and (2) because it necessitated a most major and shocking procedure to correct the well-established abnormality.

Case Report A male infant was admitted to the Kadlec Hospital on March 11, 1952 at the age of 6 weeks. He was born by head presentation of an 18-year-old gravida 1 para 0 mother,

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after an 8 hour labor. The membranes were artificially ruptured and outlet forceps were used. The infant was 21½ ins. long, had a head size of 15 cms. and weighed 8 lbs. 13 oz. The only abnormality noted was a lump over the right parietal region. The baby tolerated breast feedings well, had normal stools and was discharged with the mother six days following birth. No treatment was directed to the scalp tumor which was diagnosed as a cephalohematoma with rapid subsidence expected.

The scalp mass did not change in size but gradually lost its softness and four weeks later an x-ray revealed a rounded calcified mass over the right parietal bone (Fig. 1). Two weeks later the infant was admitted for surgical excision of the skull tumor.

On admission the scalp was shaved

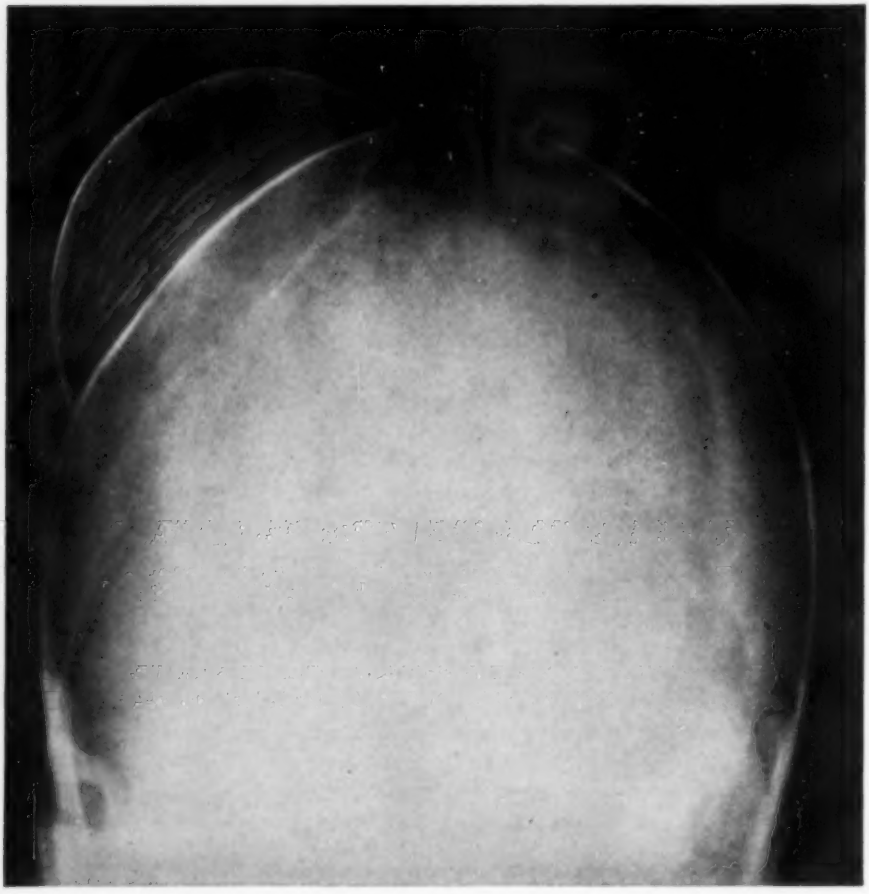

Fig. 1a. Anterior-posterior view of skull showing subperiosteal ossification of extensive cephalohematoma.

and breast feedings were discontinued 8 hours prior to surgery. The urine showed no abnormalities, the red blood count was 3,490,000, the hemoglobin 10 grams, the white blood count 8,800 with 21 per cent neutrophils.

Although an easy surgical evacuation of the mass was expected, the operation proved to be difficult and of major proportions as the calcified rim was found to be completely developed, with full growth to the skull established. Following wide exposure of the bone shell, extremely strong measures were necessary to dissect the abnormal bone from the underlying skull. The infant, under ether anesthesia, reacted to the traumatic procedure by quickly showing evidences of shock. Before the operation was half over, the child was listless, cold, cyanotic and not breathing. The surgery was interrupted in favor of artificial bag-pressure respiration and oxygen administration. Each attempt to continue surgery brought the same response and finally the procedure was

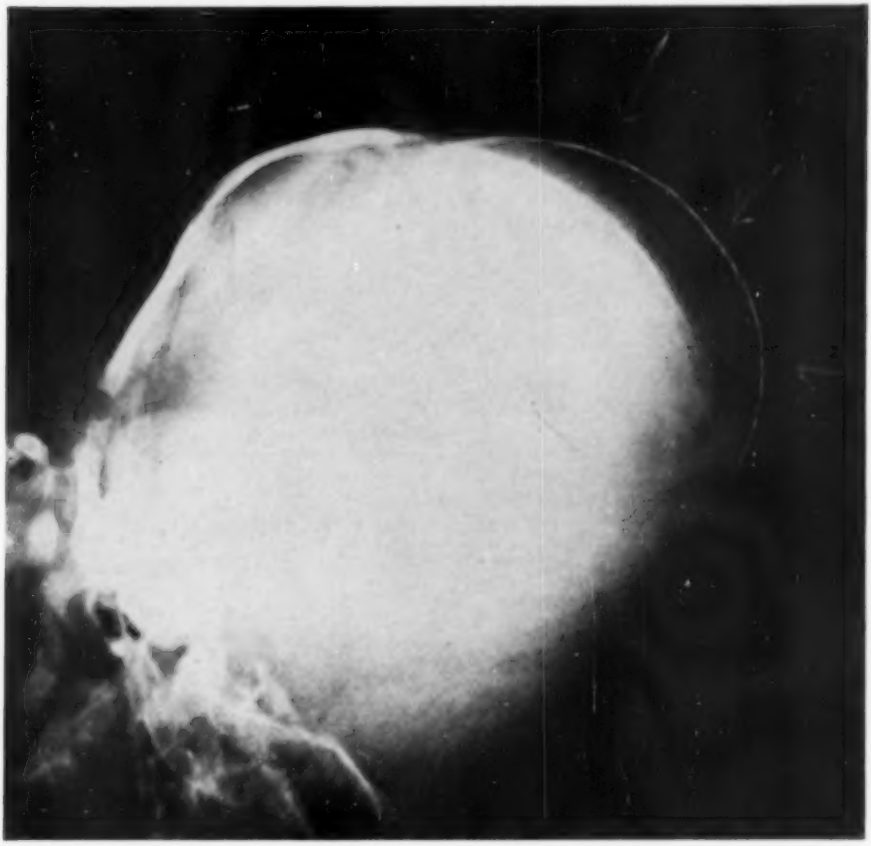

Fig. 1b. Lateral view of skull, with film retouched and arrows indicating extent of new bone formation.

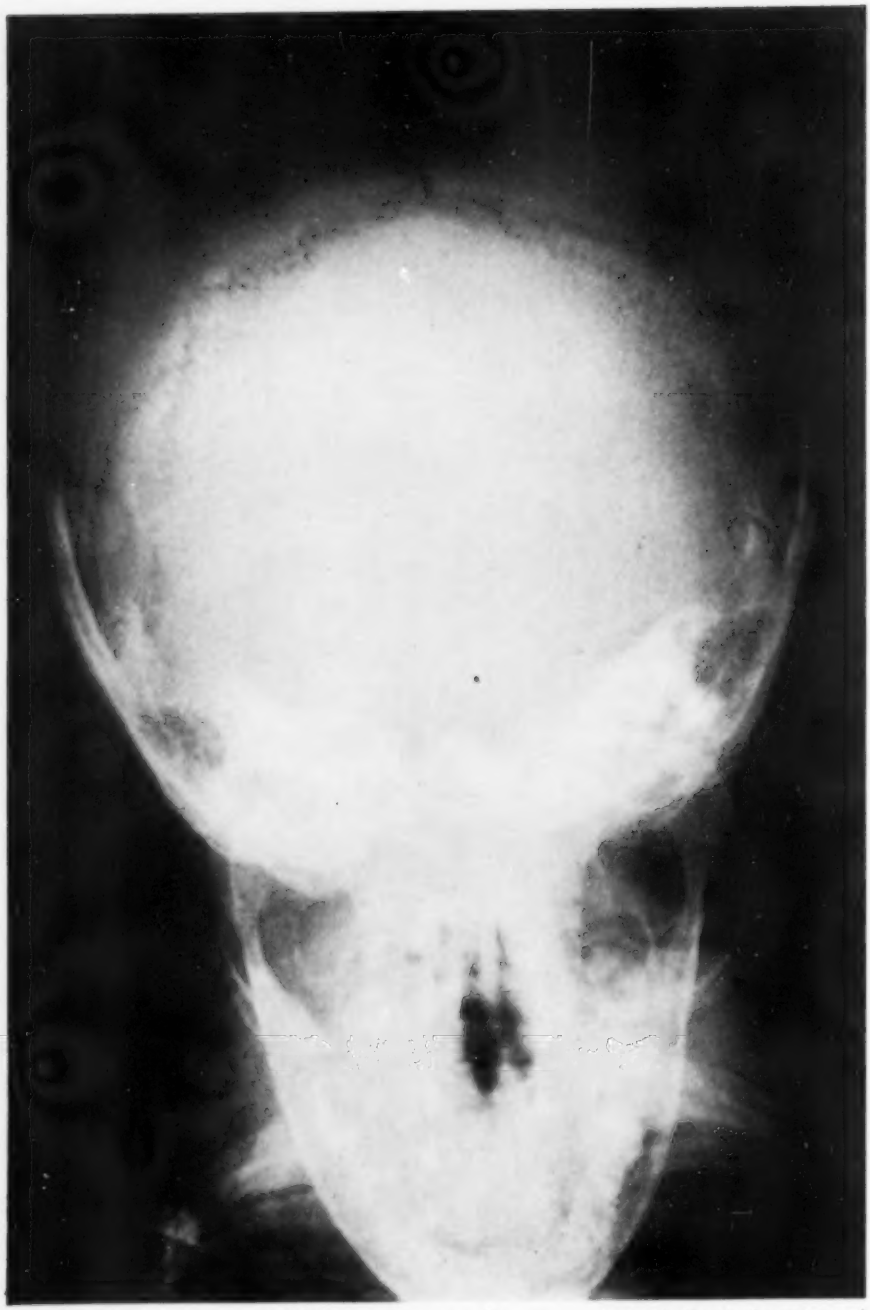

Fig. 2. Normal contour of skull seen one year after removal of calcified subperiosteal cephalohematoma.

quickly completed and hemostatic through and through sutures rapidly closed the scalp. For the last few minutes of the operation and immediately thereafter, the patient seemed to be without life. Artificial respiration and oxygen were continued and 110 cc. of whole blood (which fortunately had previously been ordered) was administered under pressure through a scalp vein. Spontaneous breathing gradually commenced and the pulse returned. The infant was further treated for shock in the operating room for another hour before he was brought back to his crib. From then on, convalescence was without complication and scalp and skull healed cleanly and cosmetically. (Fig. 2)

Summary

Inasmuch as the great majority of cephalohematomas absorb without treatment, one may readily appreciate the reluctance of the pediatrician to actively accelerate this process. Aspiration or incision is not without danger as the possibility of sepsis is ever-present. Nevertheless, the case reported shows the necessity for close supervision of this swelling and the sound prophylactic value of the removal of the blood when absorption does not appear to be taking place at a rapid enough pace to promote orderly calcification. In the patient reported, it is apparent that aspiration or incision in the early stage of cephalohematoma would have obviated the necessity for the critical surgical procedure which eventually had to be performed to correct the monstrous abnormality.

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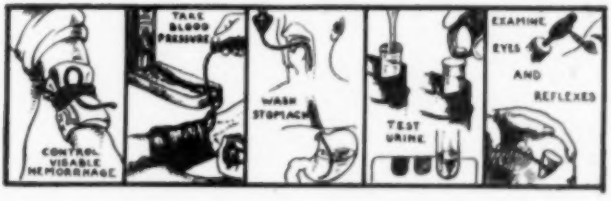

Emergency treatment of coma.

Pathogenesis of Cardiac Edema

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Voluminous literature devoted to the subject of cardiac edema has been turned out. Nevertheless, little progress had been made since the turn of the century in uncovering the mechanisms behind cardiac edema, up to the advent of the past decade. Since then, a plethora of literature has appeared, presenting numerous new concepts almost, as it were, to make up for lost time. As would be expected, many investigators have jumped on the bandwagon, some of whom apparently have left adequate data and proper conclusions behind. This paper, therefore, will attempt to present a critical review and an integrated concept of cardiac edema.

Key to Abbreviations

Tx	—Rate of proximal renal tubular activity (either absorptive or excretory) of given substance.
Tmx	—The maximum rate of proximal tubular activity for a given substance.
T^d_x and T^d_{mx}	—As above but applying to the distal renal tubules.
GFR	—Glomerular Filtration Rate
RBF	—Renal Blood Flow
RPF	—Renal Plasma Flow
F.F.	—Filtration Fraction (GFR/RPF)
A.D.H.	—Antidiuretic Hormone of the Posterior Pituitary Gland

Basic Mechanics of Edema Formation in the Cardiac Exchange of fluids between the blood stream and the extracellular spaces normally takes place through semipermeable capillary membranes. The capillary membrane is impermeable to the plasma proteins which, therefore, exert a colloid osmotic (oncotic) pressure, tending to prevent tremendous transudation of fluids and electrolytes (to which the membrane is readily permeable). The albumin fraction of the plasma proteins, having a smaller mean molecular size than the globulin fraction, exerts a greater oncotic pressure per unit of weight. Counterbalancing this effect is the capillary hydrostatic pressure (which in turn is a function of the venous pressure). The normal oncotic pressure exerted by the proteins is 30 cm. of water. The hydrostatic pressure at the arterial end of the capillary, as measured by Landis' micropuncture methods, averages 42 cm. of water, the pressure gradient gradually decreasing so that at the venous

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end of the capillaries the hydrostatic pressure is found to be 16 cm. of water. Thus transudation occurs at the arterial end with simultaneous resorption at the venous end, providing an excellent means of fluid exchange between the extracellular tissue fluid and the blood, yet maintaining a volumetric balance between the two compartments. Changes in this balance which would produce edema are as follows:

1. *Increased Hydrostatic Pressure*—An elevated venous pressure is almost always seen in edematous cardiacs. When this elevation reaches the magnitude of 15 cm. of water, the capillary hydrostatic pressure rises sufficiently to produce edema.

2. *Fall in Plasma Protein Concentration*—In uncomplicated heart disease, the plasma protein usually is maintained at normal levels. Hence this factor contributes little to the formation of cardiac edema.

3. *Lymphatic Obstruction*—Normally a very small amount of the plasma protein finds its way across the intact capillary membrane. The protein concentration in the tissue fluids ordinarily is approximately 0.2-0.5 gm.%, exerting a negligible oncotic pressure. With lymphatic obstruction, there is a gradual accumulation of protein in the tissue fluids. This results in the exertion of a significant oncotic pressure, thereby neutralizing the effective intravascular colloid pressure, with resultant increased transudation and edema formation. However, Bramkamp and others have found the concentration of protein in the edema fluid of cardiacs to be only 0.5 gm.%. This evidence is sufficient to exclude impeded lymphatic drainage as a significant factor in the production of cardiac edema.

4. *Increased Capillary Permeability*—Landis subjected the mesenteric vessels of a frog to a marked degree of hypoxia, and after only a few minutes he noted a marked transudation of fluid from the capillaries, finding the transudate to be rich in protein content. He postulated that the anoxemia of heart failure would similarly alter capillary permeability. But the aforementioned normal protein concentration in cardiac edema fluid would mitigate also against this process in cardiacs.

5. *Lowered Tissue Pressure*—Various tissues of the body exert a greater or lesser degree of pressure, which counteracts the capillary hydrostatic pressure. Therefore, other things being equal, edema would be more likely to form where tissue pressure and resistance is least (i.e. predilection for edema formation around the ankle rather than the sole of the foot.)

It can therefore be concluded that the edema of congestive heart failure is a direct result of abnormal local increases in capillary hydrostatic pressure; the amount of edema thereby formed at a given site will depend upon 1) the height and duration of the abnormal increment of hydrostatic pressure, and 2) the limitations imposed by the increasing tissue pressure as the edema fluid accumulates.

Factors in the maintenance of an increased venous pressure in heart failure

1. *Gravity*—A patient with normal central venous pressure will show an increase in peripheral venous pressure in any part of the body that is gravitationally below the heart. The increment in pressure is dependent upon the distance below the heart of the point at which the venous pressure is being determined. Hence the dependent edema

so frequently found in congestive failure can be accounted for.

2. *Redistribution of Circulation in Failing Heart*—In keeping with the concept of "backward" failure, there is said to be retrograde venous pooling of blood due to failure of the cardiac output to keep pace with venous return. This would tend to elevate venous pressure.

3. *Increased Blood Volume*—Hypervolemia has been described by Evans (using his T-1824 dye method) as being a prominent feature in congestive failure. Hypervolemia can produce an increase in venous pressure and edema, of its own accord, in a normal person. By means of infusing huge amounts of saline, this phenomenon has been demonstrated by various investigators experimentally, and inadvertently by careless post-operative fluid therapy. Since there is expansion of the entire vascular volume, such edema can be manifested either peripherally or in the lungs (pulmonary edema). In a cardiac with preexisting "backward" failure, a relatively small increment in the blood volume can produce a much sharper rise of venous pressure with resultant increase in edema formation.

4. *Venoconstriction*—The concept of an increased venous tone or venoconstriction in congestive heart failure is championed by Mac Michael and accepted by others. Earle noted a prompt drop in venous pressure after intravenous administration of Digoxin to a patient with congestive heart failure. This could be explained by postulating that Digoxin in some manner has a direct action in relaxing venous tone. This evidence is, at best, only inferential.

The direct responsibility of the elevation of the venous pressure in the production of cardiac edema has been known for years. Over fifty years ago Starling brought forth the theory of cardiac decompensation now known as "backward" failure. The following sequence of events has been postulated:

Fall in cardiac output

Backward "damming" of blood producing a rise in venous and capillary hydrostatic pressure

Increased capillary transudation with edema formation

Reduced circulating blood volume per se with an even smaller "effective" blood volume due to pooling of blood in the venous side of the circulation

Fluid retention by the kidney due to either renal venous congestion or reduced blood volume

The protagonists of this theory maintain that the initial change in circulatory dynamics is a backing up of blood behind the failing ventricle. The resultant venous engorgement would then cause edema formation, or a continuous "prerenal deviation" from the blood stream of salt and water into the extravascular spaces, thus accounting for most of the edema formation. The kidney, then, is believed to retain salt and water in a compensatory attempt to restore the falling blood volume.

Approximately fifteen years ago, various investigators became aware of discrepancies in this classical concept. Warren and Stead point out that patients in congestive failure have a hypervolemia (as measured by T-1824) with a concomitant hemodilution, which is exactly the reverse of what would be expected from the above concept. They cite the cases of two cardiacs who were compensated, and whose venous pressures were within normal values; these

patients were given twelve grams of salt daily. They gained weight and showed a rising blood volume before any rise in venous pressure could be demonstrated. In both cases, while the patients underwent recompensation and their venous pressures had returned to normal levels, weights were still elevated above the control levels.

On the other hand, Reichsman and Grant withdrew digitalis from three compensated patients, kept them on salt free diets, and found that a rise in venous pressure preceded any weight gain. Further analysis of their data, however, reveals that two of these patients failed to gain any weight; nor did they show evidence of edema throughout the course of the experiment, despite the fact that venous pressure rose in both patients. No real conclusion can be drawn in this instance.

Futcher and Schroeder found that 400 cc. of normal saline administered to edematous cardiacs failed to produce any increase in the rate of sodium chloride excretion, and resulted in a further weight gain on the part of the patients.

The above findings soon led to the promulgation of a new concept of congestive heart failure, the theory of "forward" failure, which implies the following series of events:

Fall in cardiac output
Renal ischemia
Retention of salt and water
Hypervolemia
Increased venous and capillary pressure
Transudation and edema

The "forward" theory introduces the concept that renal salt and water retention is the prime factor in unleashing the chain of events eventually resulting in accumulation of edema fluid.

Essentially, the controversy between the two schools of thought appears to be whether the factor of renal salt and water retention is primary or secondary in leading to the production of cardiac edema. The balance of this paper will present what the author believes to be adequate evidence that the kidney's role here is primary. By adopting this concept, one might feel inclined to discard the "backward" failure theory in its entirety. This is physiologically unsound, as it is tantamount to stating that "forward" failure exists without simultaneous backward "failure." Certainly in "low output" failure, a fall in cardiac output would result in accumulation of blood in the central veins; a "backward pressure" would soon develop due to the discrepancy between lowered cardiac output and sustained venous return. At the same time "forward" failure would appear simultaneously, due to failure of the reduced cardiac output to maintain peripheral circulatory demands. In a "high output" failure, such as the type seen in hyperthroidism, a pure "forward" failure, without any "backward" element, could temporarily exist as the cardiac output increases in an attempt to meet the raised peripheal circulatory demands. But sooner or later the cardiac output will reach its maximum and then fall back (Borst). At that moment, despite the fact that the output may still be elevated, the patient goes into simultaneous "forward" and "backward" failure. Therefore, one theory cannot be discarded in favor of the other. It must be concluded that both "types" are operative in almost all cases of heart failure. Even if this paper is to endeavor to show that renal salt and water retention is primary in edema

production, it still must account for the "backward" aspect. As Leiter so aptly put it, "when the heart becomes inefficient and fails, it is like the old Roman god, Janus, facing both ways—forward and backward." The following diagram presents schematically a mechanism of congestive heart failure, incorporating both "backward" and forward" failure, in which renal salt and water retention still is the primary factor leading to edema formation (after Leiter).

Renal Mechanisms in Salt and Water Retention The material presented thus far has been of a highly theoretical and speculative nature, based mainly on qualitative and temporal data. Before attempting to examine the quantitative data available in the literature, a review of certain aspects of normal kidney function might prove to be of some value.

The average human will filter 150 to 180 liters of fluid per day to form only 1,000-2,000 c.c. of urine; about 99% of the filtrate is reabsorbed. About 24,000 mEq. of sodium are filtered per day. Of this only about 200 mEq. per day will be excreted. The manner in which sodium is normally excreted is of great interest. The discussion which follows is largely based on the work of Wesson, Anslow, and Smith.

The glomerular filtrate is isosmotic with the plasma, and essentially is a protein free transudate of the plasma. If tubular activity is normal, about 85% of the sodium ion in the filtrate will be reabsorbed in the proximal tubule, regardless of the glomerular filtration rate (GFR). The proximal tubular sodium reabsorption (T_{Na}) is an active process operationally independent from water reabsorption. Water is absorbed passively in the proximal tubule, thereby maintaining an isosmicity. Since sodium is the major cation in the glomerular filtrate, water reabsorption (which, since it is passive, is obligatory) usually closely parallels (T_{Na}). Thus, the fluid leaving the proximal tubule is still isosmotic with the plasma, but contains only 15% of the originally filtered sodium.

In the distal tubule, further sodium reabsorption will take place. This again is

"Backward"	Inadequate cardiac output*	"Forward"
"Back pressure" in central veins		Output inadequate to meet circulatory demands
Increased venous pressure and engorgement		Renal ischemia
Increased hydrostatic pressure and edema formation		Salt and water retention
Decreased "effective" circulating blood volume		Hypervolemia

* This term is used here in keeping with present concepts that congestive heart failure exists when cardiac output is no longer able to meet its peripheral circulatory demands.

operationally independent. However, there apparently is a definite load limit to the distal tubular transport mechanism. The maximal rate of distal tubular sodium reabsorption (T^dmNa) is constant.

Another major difference in the distal tubular function is the manner in which water reabsorption takes place. Water is reabsorbed here independently by its own tubular transport mechanism, which also has a Tm. However, the T^dmH_2O will be reached only if the reabsorption process is maximally activated by ADH. With partial states of ADH activation T^dH_2O would be proportionately less than T^dmH_2O, and, in the complete absence of ADH, T^dH_2O will decrease to zero.

Thus, in the distal tubule, the reabsorption of sodium would render the urine hypotonic. This is counterbalanced by T^dmH_2O, which, in turn, is controlled by ADH. When ADH activity is low, the urine remains hypotonic, when moderate, the urine once again approaches isotonicity, and with maximal ADH activity, the urine becomes hypertonic, limited only by the T^dmH_2O. The T^dH_2O is thereby regulated so that the plasma sodium concentration is kept at a fairly constant level, thus maintaining normal plasma osmotic activity.

The method by which the kidney excretes sodium is rather unique. Since the proximal tubular sodium reabsorption has no Tm, the amount of sodium reaching the distal tube will be about 15% of the amount originally filtered, regardless of the GFR. Hence, the sodium load presented to the distal tubule will be directly proportional to the GFR.

If the GFR is very low, the distal load will be less than T^dmNa and there will be complete sodium reabsorptions. As GFR is increased, the distal sodium load will eventually surpass T^dmNa. Thus, a "critical" GFR exists, below which the subject will excrete a sodium free urine, and above which sodium will begin to appear in the urine. 15% of the amount of sodium in each cc. of glomerular filtrate *over* the "critical" level will be excreted. Thus, as the GFR rises above the "critical" level, the fraction of filtered sodium that is excreted will rise from zero to a figure approaching but never reaching 15%. Consequently, with a very high GFR, sodium excretion will be roughly proportional to the GFR, while at levels of GFR approaching the critical level, a given decrement of the GFR will result in a much greater decrement in the sodium excretion as it rapidly approaches zero.

Normally, salt and water balance is regulated to a very fine degree. The maintenance of water balance by ADH regulation of the T^dH_2O has already been discussed. Salt balance is regulated by changes in the GFR. An increase in sodium mass of the extracellular fluid compartment would tend to make the plasma hypertonic. This stimulates the hypothalamus via osmoreceptor activity to increase ADH activity which in turn increases TdH_2O. The subsequent increase in water reabsorption will restore the plasma to isotonicity, and, at the same time, will expand the circulating blood volume, which will raise the GFR, producing a sodium diuresis that will persist until the blood volume returns to normal. An exact reversal of this sequence will occur if there is a decrease in total sodium in the extracellular compartment resulting in sodium retention until balance is restored. The mechanisms that produce the change in GFR

in response to changing volumes within the extracellular fluid compartment are as yet unknown.

The massive expansion of the extracellular fluid compartment in the edematous cardiac with resultant hypervolemia implies that the normal renal response in regulating sodium and water balance is lacking. A discussion of the possible alterations in kidney function causing the massive retention of salt and water will now be undertaken.

Glomerulo-Tubular Imbalance—Merrill, in his now classic study of 37 patients with congestive failure and edema, was one of the first investigators to apply Smith's newer clearance techniques to cardiacs. In each patient, he determined cardiac output (using the Fick principle), venous pressure, renal plasma flow (RPF) as measured by PAH (para-amino hippuric acid) clearance, and the GFR as measured by C_{In} (inulin clearance). The results in those cardiacs who gained weight even at rest were quite significant. The RPF fell to levels of 1/3-1/5 of normal. GFR was found to be depressed to levels of 1/2-1/3 of normal. Filtration fractions* were abnormally high, ranging from .30-.50 (normal .20). He found no correlation between GFR (or RPF) and the venous pressures. In many of his patients, these studies were repeated after venous pressures had been lowered by repeated mercurial injections. No significant changes in GFR or RPF were found in these patients. In most of his patients there was a good correlation between the fall in cardiac output and the decrease in GFR. Even more of the patients with significantly depressed GFR had an increased arteriovenous oxygen difference.

Merrill subsequently repeated these experiments by exercising cardiacs who were compensated at rest. These patients showed a drop of over 30% in their GFR. Normal subjects used as controls also showed depression of the GFR_1 but not nearly of the same magnitude.

Merrill later correlated NaCl excretion rates with the levels of GFR in cardiacs. He states that a "critical" level is reached when the GFR falls to 70% of the normal, below which virtually almost all filtered salt is reabsorbed. Grossman *et al.* duplicated Merrill's results in edematous cardiac subjects. In addition, they measured T_{mPAH} and $T_{mGlucose}$, and found them to be of normal values, demonstrating the intactness of tubular transport mechanisms in these patients despite marked depressions of their RBF and GFR.

Pitts and Duggan applied a clamp to the abdominal aorta in dogs, while they were receiving a salt load intravenously. They found that when the renal blood flow was sufficiently diminished to depress the GFR to 25% below normal, there was a 90% drop in salt and water excretion.

A marked reduction in renal blood flow seems to be a prominent feature in congestive heart failure, and is accompanied by a less marked fall of the GFR, resulting in an increased F.F. A rise in F.F. results from efferent arteriolar constriction which produces an increased intraglomerular pressure. The marked increase in F.F. maintains a higher GFR than would ordinarily be expected following so marked a fall in RBF. Nevertheless, the fall in

* F.F. = GFR/RPF

GFR is of sufficient magnitude to result in a markedly diminished amount of sodium filtrate. If tubular function remains intact, and the usual 85% of the filtered sodium is reabsorbed from the already shrunken filtrate, the sodium load presented to the distal tubule will be dangerously near, or even below, the $T^{d}mNa$. The low filtration rates found by Merrill in his study (33-50% of normal) are far below the "critical" level he has cited. That these patients have normal tubular function is supported by the following evidence: (1) increased renal arteriovenous oxygen difference suggests a high degree of tubular activity as would (2) normal PAH extraction from the renal vein and (3) the previously mentioned data demonstrating normal maximal tubular transport mechanisms.

Thus a glomerulo-tubular imbalance has been shown to exist in the kidneys of patients with congestive failure. The imbalance is a result of a sharp fall in RBF and GFR, coupled with the maintenance of normal tubular function. This mechanism has been shown by various investigators to be operative in chronic congestive heart failure. Their quantitative data reveal that the GFR in these patients is sufficiently depressed to allow virtually complete Na reabsorption. Thus, this may well be the primary renal mechanism in the pathological retention of salt and water seen in congestive failure.

The entire mechanism of glomerulo-tubular imbalance is brought into being by an extreme fall in the renal blood flow. When peripheral circulatory demands exceed the ability of the heart to meet them, there is, apparently, an immediate diversionary flow of blood away from the kidney, resulting in a marked fall in the RBF. This sets off the chain of events described above. Brod and Fejfar point out that many cardiacs reverse the normal diurnal pattern of urine excretion by having nocturnal diuresis. In a well controlled experiment, they did continuous clearance studies on sleeping cardiacs with simultaneous venous pressure and cardiac output determinations. In those cardiacs who had a nocturnal diuresis, RPF was found to increase by 65% with decrease in the F.F. These changes in RPF showed no correlation with right auricular pressure changes, nor with changes in cardiac output. The authors conclude that the sharp drop in peripheral demands of the circulation upon the cardiac patient, at night, lessens the degree of relative cardiac inadequacy, thereby allowing more blood to flow to the kidney, with resulting nocturia.

Many observers have noted, unlike Merrill, that correlation between cardiac output and RBF was poor. Berne occluded the pulmonary artery in dogs producing marked reduction of cardiac output with relatively smaller reduction in RBF. Hence it can be said that the fall in RBF is reflected by the *inadequacy* of the cardiac output rather than by the cardiac output per se. The exact mechanism that produces the efferent arteriolar spasm in the kidney, with consequent reduction of RBF, is unknown. Mokotoff and Ross were unable to demonstrate any changes in RBF or the GFR following high spinal anesthesia. Humoral factors have been suggested by Merrill who found a high renin content in the venous blood of eight out of eleven decompensated patients. Mokotoff *et al.* point out that

they found VEM in the renal blood in every decompensated patient in their series. Merrill found close correlation between depressed RPF and increased arteriovenous oxygen difference. Briggs *et al.* find that the oxygen saturation of arterial blood of edematous cardiacs is almost always less than 60%. Any, all, or even none of these factors may be operative.

Renal Venous Pressure— Hwang *et al.* experimentally produced and main tained an elevation of the renal venous pressure in a dog. There was an immediate fall in sodium excretion without any change in GFR or RPF. However, the sodium excretion returned gradually to control levels over a period of days, despite constant maintenance of the elevated venous pressure.

Maxwell *et al.* measured the renal venous pressure in normal and decompensated patients. They found that there was elevation of the renal venous pressure in the cardiac patients, but they felt that in no instance was the elevation of sufficient magnitude to cause the observed degree of ischemia, as evidenced by the RPF. From the evidence available, it can be concluded that the role, if any, of renal venous pressure in producing cardiac edema, would be that of a minor additional factor.

Renal Tubular Mechanisms In the discussion of renal mechanisms contributing to the production of cardiac edema, tubular function has been assumed to be normal. Increase of proximal tubular sodium reabsorption can obviously result in salt retention. The salt-retaining effects of the adrenal steroids, sex hormones, and especially DOCA upon the kidney are well known. Theoretically, chronic congestive heart failure can be classified as a disease state producing "stress" which might bring adrenal factors into play. Schroeder in reviewing Merrill's studies points out that two of the patients cited had GFR equalling 60 and 91ml/min. respectively, and yet only excreted 0/04 —0/01% of the filtered sodium. He writes "This is incompatible with nitrogen equilibrium if applied to other kidney function." Therefore, the normal urea clearance reported in both patients led Scroeder to postulate an extrarenal influence producing an increased tubular reabsorption of sodium. It is difficult to see the rationale in his analysis. At the lowered filtration rates reported in Merrill's patients, the distal tubular sodium load probably was not much greater than the $T^{d}mNa$. Hence, the marked diminution of sodium excretion in these cases can readily fit into the glomerulotubular imbalance mechanism previously discussed. There is no justification to compare urinary sodium clearance with urea clearance. Urea has no $T^{d}m$ and therefore there is no critical level at which it will disappear as does sodium. Thus, Schroeder's conclusion does not seem to be justified. Lasche *et al.* studied patients in chronic congestive heart failure in an attempt to evaluate their adrenal function. They found that patients in congestive heart failure have 1) an increased insulin sensitivity 2) A prolonged hypoglycemic phase in the glucose tolerance test, and 3) low urinary corticoids, suggesting slight hypoadrenocorticism. However, after mercurials, a sharp rise in the corticoid excretion was noted. This suggests corticoid retention, which may depress endogenous ACTH secretion. On the other hand, Hughes *et al.* found a low concentration of sodium

in the sweat of patients in congestive failure, suggesting overactivity of the adrenals. Eosinophil counts are found to be low in congestive heart failure according to Elliot.

Direct evidence is lacking that an absolute increase in renal tubular reabsorption of sodium is an operative factor in congestive failure. Since this mechanism is under hormonal control of the adrenal cortex, the degree of activity of the adrenals in congestive heart failure has been investigated. Contradictory results were obtained. No conclusions can be made at this time. Further investigations in this area might prove to be of value.

Water Retention Dochios and Dreifus demonstrated large amounts of ADH in the 24 hour urines of patients in congestive failure. In the normal subject, ADH through its regulation of T^dH_2o in the distal tubules of the kidney, keeps the extracellular fluid compartments isotonic at all times. A change in electrolyte concentration of the extracellular fluids will stimulate the osmoreceptor apparatus located in an area supplied by the internal carotid artery. This stimulus is then mediated via the hypothalmus to the posterior lobe of the pituitary gland, which will modify the rate of ADH secretion.

In congestive failure, hyponatremia is not an uncommon finding, especially after the patient has received mercurial diuretics. This is indicative of either a change in osmolarity of the cells (Stead), or frank water retention due to ADH overactivity. Water retention may further add to the volume of cardiac edema; it is not a major mechanism in the production of this edema, but can be a contributing factor.

"Low Salt Syndrome" Schroeder described a syndrome, in certain cases of severe congestive heart failure, characterized by oliguria, azotemia, and rapid accumulation of edema fluid. Serum sodium concentrations were found to be quite low. He called this syndrome the "low salt syndrome," and states that an infusion of hypertonic salt will cause a diuresis with marked clinical improvement. He feels that this syndrome initially is caused by overtreatment with mercurial diuretics in the face of rigid salt restriction, with the resultant low salt syndrome now perpetuating itself, and becoming a "cause" of rapid edema formation and progressive oliguria.

An explanation of this phenomenon must include the mechanism of water retention due to overproduction of ADH. Essentially, a sodium diuresis gets under way when the mercurials are first administered. ADH overactivity causes a lag in water diuresis. The removal of the sodium ion from the edema fluid as sodium diuresis continues will result in a hyponatremia. There must be a critically low level of GFR so that the mere drop in sodium plasma concentration will reduce the amount of filtered sodium to the point where it will be totally reabsorbed in the distal tubule, notwithstanding the mercurial depression of proximal tubular sodium reabsorption. Thus the production of a low salt syndrome is contingent upon so marked a reduction in kidney function, that a mere fall in electrolyte concentrations will stop all diuresis with complete resorption of sodium. The benefit to be derived from hypertonic saline is limited. The immediate osmotic expansion of the blood volume following the infusion may result in sufficient improvement of the cardiac

output to produce an increase in the renal blood flow and GFR. This may allow the excretion of sodium in the urine until the blood volume and cardiac output return to their former levels. Thus a considerable fraction of the sodium remaining from the amount infused will now find its way into the edema fluid where it will go about its duties of retaining still more water. Thus the administration of hypertonic saline alone probably will be harmful to the patient. The use of a hypertonic salt solution *may* be of value if, before its administration, one were to "prime" the kidney with a mercurial diuretic and some intravenous aminophylline in the hope that the hypertonic salt will initiate a large enough osmotic diuresis so that the lagging water will undergo excretion before too much dilution of the electrolytes again takes place.

The major renal mechanisms causing salt and water retention have been reviewed. Other potential mechanisms such as sodium ion transfer in renal acid-base balance, intracellular fluid dynamics, etc., all may play very important parts in congestive heart failure and edema formation. Unfortunately, these and other possible avenues still remain to be explored and evaluated.

Conclusion

This paper has attempted to elucidate two major mechanisms in the pathogenesis of cardiac edema: 1) The existence of a primary renal factor in the form of a glomerulo-tubular imbalance (with secondary contribution from other mechanisms) which determines the volume of the edema fluid, and 2) A qualitative factor in the form of local venous pressure elevations in determining the sites of formation and accumulation of the edema fluid.

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Therapy In Rheumatoid Arthritis

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In the consideration of therapeutic approaches to this disease, one is not only confronted with spontaneous remissions unrelated to therapy, but also with the difficulty inherent in therapeutic evalution in any disease of unknown causation with no specific treatment. Consequently, it becomes particularly valuable here to determine the benefit of treatment with the aid of uniform therapeutic criteria. Such standards were devised in 1949 (52) and have been widely used since then. The extent of the disease is divided into four *Stages* of increasing progression as determined by roentgenologic signs, degree of muscle atrophy, and presence of extra-articular lesions, joint deformity, and ankylosis.

In any stage the disease may be considered active or inactive, and if active, the degree of therapeutic response is determined according to four *Grades* of such criteria as:

1. Systemic signs of rheumatoid activity;
2. Signs of joint inflammation;
3. Signs of extra-articular activity;
4. Remaining impairment of joint mobility; and
5. Progression of roentgenologic signs.

As an adjunct to the criteria for the stages of rheumatoid arthritis, the degree of functional impairment has been considered in four *Classes* of increasing disability. With the aid of such criteria, one may, prior to the institution of specific therapy, classify the patient's illness as to the stage of the disease, the presence of rheumatoid activity, and the degree of functional impairment. Following therapy, either rheumatoid activity or functional impairment, or both, may respond, with the change (if any) in rheumatoid activity generally considered to represent the crucial basis for assessment of the effectiveness of any therapeutic agent.

Conservative Therapy The course of the disease in patients receiving simple medical and orthopedic measures has been evaluated by several authors (16, 46, 49, 55). Following conservative regimes, such as would include rest periods, analgesics, exercises, application of heat to affected joints, an adequate diet with supplementary vitamins, and orthopedic procedures when indicated, it was found that in a total of 854 cases observed for one or more years, that remissions occurred in 22 per cent of 77 cases (46), six per cent of 274 cases

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(55), 24.6 per cent of 253 cases (16) and 15 per cent of 250 cases (49). The percentages showing some degree of improvement were 90.9 per cent, 87.2 per cent, 64.4 per cent, and 53.2 per cent respectively. A greater degree of improvement was noted (49) in early cases, in cases with asymmetric joint involvement, and in cases with mild activity.

Chrysotherapy The first careful studies dealing with gold salts for rheumatoid arthritis were begun in 1928 by Jacques Forestier of France, using sodium aurothioproponal sulfonate (allochrysine). After several preliminary papers, Forestier (17) in 1934 recommended sodium aurothiomalate (Myochrysine) and aurothioglucose (Solganal-B) as the most useful agents in the treatment of rheumatoid arthritis, and these are still considered to be two of the better gold preparations. In 1935, Forestier (18) reported a series of 500 cases treated with gold salts. He believed that 70 to 80 per cent of his patients responded favorably and he indicated that a greater degree of improvement occurred in the early cases than in those of more than two years duration. In 1936, other authors (24) claimed striking improvement or cure in 80 per cent of their 750 cases treated with gold, and they urged a maximum of 100 mg. of gold compound per week.

In 1942, after exhaustive studies of the metabolism and excretion of gold, a group of authors (20) concluded that large amounts of this substance were retained in the body during the period of its administration. They observed that, when a weekly dose of only 50 mg. was used, urinary excretion of gold continued for only four or five months instead of one year, as occurred with 100 mg. weekly, even though the totals were equal. Following this work, the trend has been to recommend the 50 mg. weekly dose, after a few weekly 10-25 mg. test doses have been given. More recently, after a total of one gram has been given by such weekly injections of 50 mg. each, a maintenance dose of 50 mg. every three or four weeks has been suggested.

Chrysotherapy has been considered to be beneficial not only in typical cases of rheumatoid arthritis, but also in its variants such as Still's Disease and Felty's Syndrome. The reported results of such therapy have varied greatly. In 1942, favorable results were reported (13) in the treatment of 245 patients with one or more gold salts. Complete remission was noted in 31 per cent, with great improvement in 35 per cent, moderate improvement in 20 per cent, and no improvement in 14 per cent. Controlled series have been considered to be more valuable in an evaluation of therapeutic response, and such a series was reported in 1950 (1). The authors treated 106 of 189 patients with gold. After one year of therapy they claimed complete remission in 78.7 per cent of cases on gold and in 29.8 per cent of controls for cases of less than six months duration, while in those in which the disease was present for a longer period, remissions occurred in 48.9 per cent and 16.7 per cent respectively. After an average of four years, 55.7 per cent of gold cases and 36.1 per cent of controls remained in remission.

The efficacy of gold therapy is not as apparent as might be deduced from the preceding findings, since many observers have had less satisfactory results. In a controlled series reported in 1951 (44), 28 patients treated with gold plus

44 controls given saline, serum or antireticulocytoxic serum were observed, and no essential difference in the therapeutic results of the two groups was found. In another series reported in 1953 (11), an analysis of comparable groups of cases in a total of 166 patients given one of six forms of therapy (Gold, 38 cases; Copper, 40 cases; Saline, 38 cases; Arsenic, 21 cases; Physiotherapy, 16 cases; and Aspirin, 13 cases), indicated that the results of a single course of treatment with gold salts are no better than those obtained by the other five methods.

Contraindications to gold therapy consist of severe diabetes mellitus, nephritis, ulcerative colitis, pregnancy, specific allergy, significant hepatic disease, a history of exfoliative dermatitis, blood dyscrasias and a hemorrhagic tendency. Gold is a toxic drug and severe toxic reactions occur in from ten to 20 per cent of patients (47). Such reactions include: fatal exfoliative dermatitis, agranulocytosis, thrombocytopenia, aplastic anemia, nephrosis, stomatitis, gastritis, and colitis.

As precautionary aids against such toxic reactions, a urinalysis should be lone every week or two during the course of treatment with gold; if albuminuria appears, gold therapy should be stopped. White blood cell counts with differential counts and estimation of the number of platelets on the smear should be done every week or two to detect the earliest evidence of a toxic reaction. Manifestations of skin toxicity are usually preceded by pruritis, and this symptom or a rash appearing during the course of chrysotherapy should be considered a toxic reaction to gold. At the first sign of such findings, leukopenia, or thrombocytopenia, gold therapy should be stopped. Since the drug is excreted slowly, toxic manifestations often persist beyond cessation of therapy; in cases of severe reaction, dimercaprol (BAL) should be used without delay since this drug has been found to be helpful in combatting gold toxicity. The skin complications of chrysotherapy may be controlled completely by the administration of cortisone, but one must be prepared to continue the cortisone during the natural course of the toxic reaction, which may continue for up to 12 to 15 months. If a severe toxic reaction develops, gold should not be administered again.

A recent report on gold therapy (3) states that aurothioglycanide (Lauron) was employed as being less toxic than other gold products. With this gold product, 37.7 per cent of 69 patients showed grade 1 or grade 2 improvement (American Rheumatism Association Criteria). Seventeen of the patients showing a good initial response were continued on maintenance therapy with this gold preparation, and of these, 15 showed a satisfactory result when treatment was terminated. A report from the Rheumatism Research Center of the University of Manchester, England, (32) also shows good results with either auriothioglucose or auriothiomalate. It was found possible to diminish the incidence of toxic reactions and obtain good therapeutic results by adjusting the dosage of the gold product used according to the fibrinogen content of the plasma, lowering the dosage as the plasma fibrinogen diminished toward normal. Of the 66 patients treated on this schedule, all under sixty-five years of age were able to return to work.

Cortisone, Corticotropin and Hydrocortisone In 1938, Hench (26)

reported observations on the course of arthritis during 34 pregnancies; 30 produced marked or complete remission of the arthritis. Another condition seemingly unrelated to pregnancy, which also, however, was seen to cause remissions of rheumatoid arthritis, was hepatitis with jaundice. Of 30 patients with rheumatoid arthritis observed by Hench (27), 25 experienced complete temporary remissions of arthritis during an attack of jaundice. As a result of these observations on the relief of rheumatoid arthritis during pregnancy and jaundice, Hench was led to the belief that some substance normal to the human economy was responsible for the relief of this disease. An enumeration of the possible substances that might be tried included the adrenal cortical hormone, but it was not until 1948 that sufficient cortisone was available to make an adequate clinical trial.

The report of this trial by Hench and others (28) was published in 1949. Their experiences with cortisone were then limited to only 14 selected cases of moderately severe to severe rheumatoid arthritis, but even this limited trial demonstrated the dramatic results obtainable with cortisone. At that time Hench and his colleagues also produced remissions in two patients with severe rheumatoid arthritis following the administration of corticotropin.

Since the advent of these initial trials with cortisone and corticotropin, further studies corroborated these initial results, and by this time the effects of these hormones upon this disease have been well documented (4, 7, 19, 29, 30, 42); they may be considered under three headings:

1. *Clinical Response* — Lessening of subjective symptoms usually begins within two or three days. There is appreciable reduction of muscular and articular stiffness; lessening of articular tenderness, aching and pain on motion; and usually reduction of articular swelling.
2. *Biochemical and Metabolic Effects* —Sedimentation rates are reduced, often to normal values. The hemoglobin concentrations of anemic arthritics often increase, as do erythrocyte counts. Total leukocyte counts usually increase slightly. When hyperglobulinemia is present, reduction of the serum globulin usually occurs and albumin-globulin ratios tend to return toward normal. Daily doses of 100 mg. of cortisone usually do not produce significant alteration in the concentrations of electrolytes in blood or tissues, but higher doses may result in a hypopotassemic, hypochloremic alkalosis.
3. *Histological Changes* — Biopsy of synovial tissues removed before and at various times during the use of either of the hormones indicates that synovial inflammation is reduced thereby. Histological improvement is mild, moderate, or pronounced, depending on how long the hormones are given and on the patient's individual response to them.

To obtain such effects, suppressive doses of cortisone in use shortly after the drug's introduction involved relatively large initial total daily doses of 200-300 mg. for the first few days, followed by 100 mg. daily for one to two weeks. Subsequently, however, it has been found that adequate suppression and greater avoidance of significant side effects is obtained by administering 100

mg. per day until desired remission is obtained, but not exceeding two weeks. The daily dose may then be gradually reduced (in steps of 12.5 mg.) to the smallest effective maintenance level, which ideally should be 75 mg. or less per day.

As for corticotropin, therapy may be initiated with a dosage of 20 units given at six-hour intervals to determine response. If necessary, dosage may then be increased to 25 units every six hours and continued until improvement is evidenced, usually within a week. Dosage may then be reduced by increments of five units per dose, but maintaining the six-hour level. Each reduction should be carried out for three to five days to determine effectiveness. When the minimum effective dose under this regimen has been determined, attempt should then be made to increase the interval of administration from six hours to eight hours and, if possible, 12 hours. Three to five days on each schedule should be carried through. Eventually the patient may be able to continue in remission on one dose per day and later possibly at several days' interval. Maintenance dosage may be established at a level of 10 to 30 units per day, dependent upon the degree of relief obtained. Failure to obtain relief at a given level indicates the need for returning to a higher dosage or divided doses each day.

Since in only 10 to 15 per cent of patients with rheumatoid arthritis is a sustained remission seen following withdrawal of therapy, continued hormonal administration should be contemplated in most instances. Such prolonged therapy with cortisone and corticotropin has been recently evaluated in an article (38) describing the authors' experience with the administration of these hormones to 50 patients with active rheumatoid arthritis, over an 18 month period. Following initial suppressive therapy their patients were well sustained on doses of cortisone, ranging from 25 to 100 mg. per day, with average daily doses of about 60 mg. of parenteral cortisone and 70 mg. for oral cortisone. As noted by others (4, 21), the oral dose of cortisone was found to be approximately 120 per cent of the parenteral form. In the few cases in this series in which corticotropin was utilized for maintenance treatment, a mean daily dose of 47.5 mg. was found to be necessary. Only five patients in this study failed to respond. In the remaining cases, the degree of improvement was found to be proportional to the severity of the disease process; this finding has been noted by others (8, 22).

The exacerbations occasionally seen in the course of hormone therapy were noted in the course of this study, and the authors offer as possible explanations such factors as: dose reduction, emotional upset, and infection. Side effects were noted in 44 of the 50 patients, and of the six who had no evident side reactions, three were under treatment for a very short time (2-6 weeks). This high incidence of side effects reflects the consensus of experience, especially with continued high dosage and the complete suppression of disease. In such cases, manifestations of Cushing's Syndrome rapidly make their appearance. Among the commonest have been hypertension, glycosuria and hyperglycemia, hypokalemia and muscle weakness, reactivation of latent infection such as pulmonary tuberculosis, failure on the part of the patient to manage an intercurrent infection, psychotic episodes, and congestive heart failure due to sodium and

water retention. When large doses are continued for long periods of time, demineralization and pathological fractures have been described.

A recent report from the Mayo Clinic (57) emphasizes the importance of the gradual reduction of dosage of cortisone for continued therapy until a minimal maintenance dose is established. They report results in 65 patients followed up for two years; 46 of these patients (71 per cent) are being given cortisone after eight to twenty-four months of continuous administration; in these 46 patients relief of symptoms is "great" in 9 cases (20 per cent), "marked" in 16 cases (35 per cent), "moderate" in 19 (41 per cent) and "mild" in 2 cases (4 per cent). Some side effects, mild in all instances, have been observed in only 9 of these 46 patients, and in these cases usually developed when larger doses of cortisone were being given than are now used. In most of these 46 cases the daily dosage of cortisone was reduced below 75 mg. Of the 19 patients not given cortisone continuously during the period of follow-up, 9 have shown satisfactory improvement with interrupted administration in repeated courses; in 2 cases cortisone was discontinued on the patient's own request because the irreversible changes in the joints "overshadowed" the active symptoms; in 8 patients cortisone was discontinued because the dosage required for relief of symptoms caused significant side effects. The authors state that: "No previous form of treatment, including the use of gold, has given so much relief in such a large percentage of our patients." They emphasize the fact cortisone is indicated only in cases of rheumatoid arthritis with active symptoms, as cortisone suppresses only such symptoms and does not repair damage to bone or cartilage, or ankylosis of joints.

Clark and his associates (14) have found that long term therapy with cortisone and/or ACTH has a favorable effect on clinical symptoms of rheumatoid arthritis, especially pain and stiffness of the joints, and this often makes it possible to carry out rehabilitation measures more effectively; such measures should never be neglected. Homburger and Bonner (33) found remissions more prolonged with cortisone than with ACTH; the use of small doses of insulin with cortisone seemed to enhance the therapeutic effect. A report from Sheffield, England (58) is less favorable than the American reports; at the Sheffield Center for Investigation and Treatment of Rheumatic Diseases, a group of 27 patients treated with cortisone for an average of nineteen months showed no greater or only slightly greater improvement than 27 other patients treated at the Center by other established methods. The use of cortisone or corticotropin (ACTH) in 12 patients with a history of recent mental stress showed no evidence that these hormones had any ill effect on the patients' mentality (40); it is suggested that the euphoria manifested by many patients under treatment with these hormones is a natural reaction to the relief of pain and disability and not due to the action of the hormones on the mentality.

Canadian investigators (41) have recently reported a new method for the administraton of corticotropin (ACTH); a preparation of highly purified corticotropin administered intranasally in normal persons produced the characteristic effect of lowering the eosinophil count and increasing the urinary excretion of 17-ketosteroids. This intranasal

method of administration was used in 17 patients with conditions known to respond to ACTH; there was definite improvement in 14 of these patients; the cases treated included 5 cases of rheumatoid arthritis with satisfactory improvement in 3 cases.

More recently, hydrocortisone has been used for direct intraarticular injection into acutely inflamed joints. This compound, which appears to exert a purely local action devoid of systemic effects, has been noted to effect reduction in swelling and tenderness within 24 hours after injection. The dose of hydrocortisone employed depends on the size of the joint and on the relief obtained. The usual dose in a knee is 25 mg., and lesser doses such as 10 to 15 mg. are used in the smaller joints. Unfortunately, the beneficial effect is temporary, with relief lasting from a few days to several weeks. Other drawbacks include the facts that an exacerbation in the joint may occasionally follow the beneficial effect, and that repeated intra-articular injections are difficult in the long-term management of this disease.

The intra-articular injection of hydrocortisone is of chief value in the treatment of the knee joint, as an aid to rehabilitation treatment of various types (23, 31, 32, 48). Hollander (31) states that while the relief obtained is often of short duration, in some cases it is maintained for a considerable period; and that nearly all of his patients returned "eagerly" for another injection when the beneficial effects of the previous injection had worn off. Recently Boland of Los Angeles, Calif. (5, 6) has reported the oral administration of hydrocortisone, instead of cortisone, in rheumatoid arthritis. In the treatment of 44 patients who had previously been treated with cortisone, and 16 patients who had never had hormone therapy, he found that at least an equal degree of improvement and usually a better control of symptoms, was obtained with smaller doses of hydrocortisone; and that with this smaller dosage, undesirable effects were of less frequent occurrence.

Combined Therapy

Cortisone and Gold—The undesirable side effects resulting from the prolonged administration of cortisone and corticotropin stimulated a study (54) to determine if cortisone and gold given concurrently, or if cortisone given to patients already receiving gold, would increase the effect of gold or cortisone so that the disease process of rheumatoid arthritis would be more rapidly and permanently inactivated, than if cortisone or gold were administered alone. For this purpose, 92 patients with active chronic rheumatoid arthritis, with various stages of involvement, were divided into four series and given either one or both of these drugs.

Following approximately a year of this therapy, the authors analyzed their results and concluded that although no additional therapeutic effect was obtained by adding cortisone to gold therapy, gold given concurrently with cortisone seemed to arrest rheumatoid arthritis in approximately the same percentage of patients as gold given alone, and that it appeared superior to cortisone employed alone. It was further noted that whereas seven of the patients given combined therapy had had previous toxic reactions to gold, only three patients in this group of 13 patients had a toxic reaction this time. Consequently, the authors conclude that such concurrent gold and cortisone therapy has several advantages:

1. Patients who have previously been intolerant to gold can be given gold with cortisone, with less danger of a reaction to the gold.
2. With cortisone, it is possible to institute immediate rehabilitative measures which can be carried out before the gold levels are sufficiently high to be effective.
3. Cortisone may be discontinued in the patients who respond to gold, thus minimizing the danger of side reactions developing from the prolonged administration of the cortisone.

Cortisone and Para-Aminobenzoic Acid—An effort to produce relief from the symptoms of rheumatoid arthritis with smaller doses of cortisone and thus reduce the side effects of this hormone, was recently reported (60) in a controlled study on the concurrent administration of small doses of cortisone (25 mg. daily) and divided doses of PABA (1.5 grams every two hours during the waking period).

Although no detailed studies as to the degree of improvement are offered, these investigators noted that all of the 15 patients treated showed marked subjective and objective improvement only on combined therapy which rapidly receded when cortisone was replaced by a placebo. They concluded that the combined use of cortisone and sodium para-aminobenzoate permits satisfactory suboptimal control of the manifestations of rheumatoid arthritis with an arbitrarily chosen dose of cortisone acetate which, by itself, is completely ir effective in controlling the manifestations of this disease.

In further studies of the effect of the combination of para-aminobenzoic acid with cortisone, Wiesel and his associates (59, 61, 62) have confirmed their earlier results. In vitro studies on rat liver slices (59) showed that para-aminobenzoic acid interferes with the reduction of the unsaturated conjugated system of the cortisone molecule, but permits more rapid degradation of the side-chain. In January 1954, Wiesel and Barritt (62) reported the treatment of 31 patients, who were given the sodium or potassium salt of para-aminobenzoic acid before each dose of cortisone; with this method the total daily dose of cortisone could be reduced to 37.5 mg.; 23 of these patients had been treated by larger doses of cortisone alone for one or two weeks; all but one showed a degree of improvement equal to that with the larger doses of cortisone. Another 8 patients were given cortisone with para-aminobenzoic acid and showed satisfactory improvement. The only signs of hypercorticoidism in these patients were slight weight gain or some rounding of the face in a few cases; there were none of the more serious complications of cortisone therapy, such as peptic ulcer or intercurrent infections although the rate of improvement in the symptoms of rheumatoid arthritis was somewhat slower than with the usual dosage of cortisone. Another group of investigators (9) report that Pabanic (a combination of potassium para-aminobenzoate and glucuronolactone) so enhanced the action of cortisone that definite improvement in rheumatoid arthritis was noted with doses of cortisone that were "subeffective" when giver. alone.

Other Forms of Combined Therapy—Salicylates have long been used in the treatment of rheumatoid arthritis for the relief of pain. Recently one group of investigators (56) reported the addition of calcium pentothenate, and another

group (63) the addition of para-aminobenzoic acid to sodium salicylate or aspirin. Both groups reported that the improvement in symptoms was greater with such combinations than with salicylate alone, and that the tolerance for the salicylate was increased.

Phenylbutazone This compound, which is commercially produced under the trade name "Butazolidin", was recently made available in the form of 100 mg. and 200 mg. oral tablets. The average effective dose has been found to be 600 to 800 mg. daily taken in divided amounts. The action is usually manifested by the third to fourth day of treatment, and once improvement has been obtained on this higher dosage, gradual downward adjustments to maintenance levels varying from 100 mg. to 600 mg. a day are made.

Favorable results have been reported in various series (34, 35, 50, 51) by several investigators. In a total of 230 cases, observed for periods varying from a month to a year, remissions or major improvement were noted in 72 per cent of 29 cases (34), 59 per cent of 68 cases (35), 100 per cent of 16 cases (50), and 23 per cent of 117 cases (51). The beneficial effects described are, however, unfortunately accompanied by many toxic reactions. The reported incidence of undesirable side reactions has varied from 25 to 33 per cent, while in about 12 per cent of cases the toxic manifestations made it necessary to discontinue the use of the drug (34, 50, 51), and discontinuance of phenylbutazone has resulted in prompt reappearance of the arthritic manifestations. Reported toxic reactions have included agranulocytosis, anemia, thrombocytopenia, gastro-intestinal hemorrhage, reactivation of peptic ulcer, leukopenia, purpura, hemoptysis, hematuria, rash, edema, nausea, stomatitis, vertigo, nervousness, euphoria, insomnia, salivary gland swelling, and blurred vision. Consequently, this drug must be used with the greatest caution. The patient receiving such therapy should be examined frequently, and periodic blood counts and urinalyses should be performed.

In their latest report Kuzell and associates (36) stated that 800 patients had been treated with phenylbutazone (Butazolidin) from November 1950 to May 1953; of these 163 were cases of rheumatoid arthritis; 96, i.e., 59 per cent, showed Grade I or II response (American Rheumatism Association criteria), 40 showed only Grade III response and 26 (16 per cent) were not improved. As noted in previous reports, symptoms returned when the drug was discontinued. The improvement was less in this series with a longer period of observation, as the initial report of these authors in a smaller series of cases showed 72 per cent had shown Grade I or II response. Of the entire series of 800 patients treated, 231 showed some toxic reaction to phenylbutazone; of the 163 cases of dheumatoid arthritis treated, 82 showed some toxicity, but discontinuance of the drug on this account was necessary in only 25 cases. Water retention was observed in 25 cases; 8 patients became more anemic but medication could be continued in 6 with the use of hematinics and blood transfusions in 3 cases; 3 patients with rheumatoid arthritis developed agranulocytosis while taking phenylbutazone and the drug was discontinued, but later after the blood count had become normal, treatment was resumed without recurrence.

A smaller series of 13 cases reported in 1953 (53) showed Grade I or II re-

sponse in 69.8 per cent, with Butazolidin therapy; continued administration of the drug was necessary to maintain improvement, except in the more acute cases, in which it could be discontinued without recurrence of symptoms. No leukopenia, granulocytopenia or agranulocytosis occurred in these cases, but the authors note that frequent blood counts are necessary when this drug is used. Other reports of small groups of cases (10, 43) indicate that the results of treatment with phenylbutazone are similar to those with cortisone and corticotropin. Brodie states that like cortisone, phenylbutazone causes retention of water, sodium and chloride, with resulting edema in some cases; this drug may also reactivate peptic ulcer. The fall in the red cell count, hemoglobin and hematocrit that may occur during treatment with phenylbutazone, Brodie and his associates attribute primarily to hemodilution rather than to any depressive effect on the bone marrow. In Brodie's series of cases the dosage used was 800 mg. phenylbutazone daily, but his study of the plasma levels of the drug with this dosage suggest that smaller doses (400 to 600 mg.) would be effective. Three reports from hospitals and clinics in Great Britain (12, 15, 45) show favorable results with phenylbutazone in a dosage of 400 to 600 mg. daily; one of these British authors, Pemberton of Manchester (45) had equally good results with 800 mg. daily for five days a week. These British reports show few serious complications but they note especially the danger of activating peptic ulcer, and warn against the use of the drug in cases with symptoms suggestive of peptic ulcer. The possibility of agranulocytosis must also be kept in mind Pemberton (45) states, when phenylbutazone is used. Brodie and his associates (10) are of the opinion that the results obtained with phenylbutazone suggest that further investigation of non-steroidal compounds should be carried out, to determine whether such compounds can be found that "exert desirable local tissue effects" without causing hormonal imbalance.

Roentgen Therapy Although there has been little or no beneficial effect following roentgen therapy of peripheral joints in typical cases of rheumatoid arthritis, such treatment has been found to produce a good response in cases of rheumatoid spondylitis. In combination with physiotherapy and indicated orthopedic measures, symptomatic remissions have been achieved in over 80 per cent of treated cases. Such improved cases then have relatively few subjective symptoms of pain and stiffness, but roentgenologic changes and spinal rigidity progress.

Chloroquine Diphosphate Another author (16) bases his work largely on the theory that rheumatoid arthritis is based on the high effort level of the tissues, especially for adenosintriphosphate (ATP), with a simultaneous lack of the hormonal support necessary to maintain this level. He reasons further that inhibition of the tissues' requirement for ATP should bring amelioration of many of the symptoms of rheumatoid arthritis. In support of this, it is noted that gold and copper salts used in the treatment of rheumaoid arthritis are both powerful inhibitors of ATP-ase activity. Since substances in the quinine group were recently found to have ATP sparing qualities, investigations were conducted to determine whether chloroquine diphosphate, another antimalarial drug, might be utilized in the treatment of rheumatoid arthritis.

Chloroquine disphosphate was given to 28 rheumatoid arthritis patients, for a six-month period in doses of 500 mg. three times a week. By the end of this period of continuous administration, it was noted that 21 out of 28 cases exhibited considerable improvement. Only one patient had a complete remission and one showed no signs of improvement. No toxic effects were noted in any of the patients. From these results, the author concludes that although this data is not sufficient for judging the true efficacy of chloroquine therapy, the drug might be regarded as an additional antirheumatic substance.

Placental Serum Therapy In an effort to utilize a substance which would offer a patient the benefit of cortisone, without its side effects, high cost, and limited duration of effect, several investigators (2) followed Hench's report (26) on the ameliorating effect of pregnancy on rheumatoid arthritis by an interesting line of reasoning and observation. It occurred to them, that since the pregnant woman apparently develops substances which are of therapeutic value against rheumatoid arthritis, that these substances might be present in the placental circulation. Therefore, they collected blood from the placenta and used the serum for the treatment of this disease. Patients were given 10 cc. amounts of pooled serum twice weekly by intramuscular injection.

The report of these investigators is based on their results in treating 33 cases of active rheumatoid arthritis and two cases of rheumatoid spondylitis for periods varying from three months to one year. The authors observed that although their results were not as rapid or as spectacular as those reported with cortisone and corticoptropin, that definite, although slow, improvement did occur in over 85 per cent of the patients. It was noted, however, that a few weeks were required before any noticeable improvement was observed, and that this usually continued only as long as the semiweekly injections were maintained. The authors submit these results with the thought that the serum is helpful and worthy of further consideration, especially since no untoward side effects or toxic manifestations were noted in any of their patients.

While the use of placental serum in rheumatoid arthritis has not been frequently reported in the last two years, Levy and his associates (39) reports 45 cases of rheumatoid arthritis and 2 cases of Marie-Strümpell's disease treated with placental serum and under observation for almost three years. Placental serum was given by intramuscular injection in doses of 10 cc. twice a week. There was no case with complete remission but 31 patients showed grade 2 response and 10 a grade 3 response. No side effects or toxic reaction were observed except for "an occasional local reaction."

Conclusion

Although agents such as gold, cortisone, corticotropin, phenylbutazone, chloroquine diphosphate, and placental serum may play a useful role in achieving the best possible results in cases of rheumatoid arthritis, an ideal therapeutic agent has yet to be found. This emphasizes all the more, the need for good conserva-

tive and corrective therapy. Schedules should permit long hours of sleep at night and rest periods during the day. Physical therapy measures such as massage and exercise will provide worthwhile relief in many instances. Analgesics such as aspirin or codeine, mild sedatives such as small doses of phenobarbital, and such orthopedic measures as may be indicated to correct bony deformities, will help to make the patient's life a happier one.

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Epilepsy

Recent Progress and Practical Considerations

A Panel Discussion†

Dr. Robert S. Schwab, Moderator, assistant clinical professor of neurology, Harvard Medical School; director of the Brain Wave Laboratory, Massachusetts General Hospital, Boston.

Dr. Douglas T. Davidson, instructor in pediatrics, Harvard Medical School; associate physician and associate in Seizure Division, Children's Hospital, Boston. Dr. Joseph M. Foley, assistant professor of neurology, Harvard Medical School; assistant visiting neurologist, Boston City Hospital.

Dr. Joseph M. Foley, assistant professor of neurology, Harvard Medical School; assistant visiting neurologist, Boston City Hospital.

Dr. Hannibal Hamlin, instructor in neurosurgery, Tufts College Medical School; clinical associate in neurosurgery, Massachusetts General Hospital; associate neurosurgeon, Rhode Island Hospital, Providence, R. I.

Dr. William Lennox, guest of honor.

Dr. Jerome K. Merlis, assistant in neurology, Harvard Medical School; clinical associate in neurology, Massachusetts General Hospital; chief, National Veterans Epilepsy Center, Veterans Administration Hospital, Boston.

Miss Constance Rathbun, director of case-work, Children's Aid Association, Inc., Boston.

Dr. Edward P. Richardson, Jr., instructor in neurology, Harvard Medical School; assistant neurologist and assistant neuropathologist, Massachusetts General Hospital.

Dr. William W. Sargant, chief, Department of Psychiatry, St. Thomas's Hospital, London, England.

Dr. Nathan B. Talbot, associate professor of pediatrics, Harvard Medical School; physician, Children's Medical Service, Massachusetts General Hospital.

Moderator Robert S. Schwab: On my left, we have the Dean of Research and Knowledge of epilepsy, Dr. William Lennox, Guest of Honor, who has devoted his life to it, and he has been good enough to sit up here with our Panel and help out this afternoon. Any questions or problems that come up that we beginners are unable to answer, I am sure that Dr. Lennox will have the correct explanation and the figures for you.

This panel has been planned to include five short papers. Then after a brief intermission, the discussion and question period will begin. We have circulated to you the summaries of the short talks, and, in addition, 70 suggested questions. We are not trying to lead this discussion in any undemocratic way by forcing you to use these questions; you may use any other questions you wish.

† Presented at the Annual Meeting of the Massachusetts Medical Society, May 20th, 1954.

Moderator's Introduction

ROBERT S. SCHWAB, M.D.*

Definition Epilepsy is a recurrent paroxysmal abnormal disturbance of brain function. This is called a spell, convulsion, crisis, fit, or ictus.

Types These disturbances may be divided into three main types:

a) So-called "inhibitory" disturbances. There is a reduction or cessation of some normal function of the nervous system, such as arrest of respiration with apnoea, or impairment or complete loss of awareness or consciousness.

b) Sensory disturbances. Here there may be a feeling or sensation of pain, burning, tingling of some part of the body, or light flashes or noise or smells. These may be simple, such as the noise, or complex, such as a formed conversation or music.

c) Motor disturbances. These may be to and fro muscular contractions that have no purpose or meaning, comparable to the simple sensory feelings such as the noise, or may be elaborate patterns of learned movement such as reaching the hand into the pocket, pulling out an object and placing it in the mouth. (Automatism or psychomotor spells). They also include continuous enervation of muscle groups, producing hyperextension of the spine, for example.

Causes Epileptic phenomena may be caused by local inflammation in specific parts of the brain, scar formation from injury, interference with function due to a tumor or other space-occupying mass such as a clot of blood, generalized disturbances produced by the presence of chemicals in the body such as strychnine, and generalized disturbances causing a lack of oxygen or glucose required in normal brain cell activity. Where no cause can be ascertained, the expression "idiopathic" is used.

Pathological Physiology The actual seizure disturbance is accompanied by chemical changes in the area of abnormality, and abnormal electrical changes in the cells involved. Certain brain regions produce specific spells, such as automatisms = temporal lobe; focal motor spells = motor area.

Clinical Classification Spells are first classified into brief ones and long ones. Under the brief ones there are:

a) Short 1 to 10 second losses of awareness or consciousness without motor or sensory components, called "petit mal" or "lapse" or "absence". During these it is usual for the electroencephalogram to show the classical spike and wave disturbance coming from all leads at the same time.

b) Short automatisms or complex motor movements that have been previously learned. These last from 10 to 100 seconds and are accompanied by a large variety of inappropriate movements such as chewing and sucking, humming, turning of the head as if looking for an object, walking in bizarre ways, and even more violent forms of activity.

c) Localized motor movements such as twitching of the mouth or flexion of one

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digit. These can last from 30 to 130 seconds.

d) Short activities of the autonomic nervous system such as racing of the pulse, rapid breathing, extreme pallor, or salivation.

Some short spells contain several of the above-named components and some spread from the simplest, under a), to the more complex.

Long spells are spells of over 2 minutes in duration that may run into several hours. They are divided into:

a) Generalized to and fro movements of multiple limbs—so-called "grand mal" seizure.

b) They may be long periods of unconsciousness without motor movement.

c) They may be elaborate automatisms with all sorts of patterned movements, one following the other, in an inappropriate setting.

d) They may also be long periods of sensory disturbance without motor activity.

Again any of these may be composed of the various components under A, B, C and D.

Many seizures, particularly the long ones, are introduced by an apparent period of either sensation or motor activity of a characteristic sort before there is loss of consciousness. If these were isolated they would be called short spells. When they spread on into a generalized convulsion, however, or a long automatism, they are called "warnings" or "aura". They are essentially part of the complete picture of the seizure. Another feature of epileptic spells in general is an amnesia for the part during which consciousness is lost, and for nearly the entire part of the automatism, whether it be sensory or motor or mixed. Many of the longer spells are also accompanied by periods of confusion and dullness and sleep after the seizure has passed.

Incidence Epileptic seizures have been naturally encountered or produced in all animals with cerebral cortex. Any normal person may have a convulsion if sufficient causes listed previously occur. It is estimated that recurrent seizures occur in approximately one million people in this country.

Treatment a) Removal of the cause. Obviously if seizures are produced by poison, eliminating the substance will stop the seizures. If seizures are due to the presence of a tumor, scar or other structural foreign material, surgical removal, if it is safe and feasible, is one method of treatment.

b) The use of anti-convulsants. Where it is not possible to remove the cause, the addition to the patient's physiological environment of specific chemicals which control the seizures is the method of choice. These are Phenobarbital, Dilantin, Milontin, Tridione*, Mesantoin* and Mysoline. These medicines must be taken, of course, at regular intervals, sometimes as often as four times a day, in order to keep the level of the drug effectively high. Some of these compounds produce undesirable side effects in addition to acting as anti-convulsants. Where these are benign, such as slight drowsiness, the drugs can be continued, but where they are serious, such as causing a reduction in the circulating white cells to a level of dangerous leukopenia, the drug must be eliminated and the situation prevented, if possible, by following the patient with appropriate white counts of his blood. The drugs with asterisks have been associated with depression of the white count in some patients.

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this subject into more detail if desired.

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Anatomical and Physiological Aspects

JEROME K. MERLIS, M.D.*

Hughlings Jackson's (1873) definition of epilepsy as "the name for occasional, sudden, excessive, rapid and local discharges of grey matter" underlines one fundamental concept, that a seizure is due to excessive discharge of nerve cells.

Although any collection of nerve cells is potentially capable of excessive discharge, the epileptic seizure, as we know it clinically, is primarily initiated by discharge of neurones of the cerebral cortex and upper brain stem (including the diencephalon). As recorded by the electroencephalograph, the epileptic discharge appears as a burst of rapidly repeated synchronous waves (the tonic phase) followed by a series of short bursts separated by brief silent periods (the clonic phase). There is then a period of quiescence followed by irregular slow waves (the post-ictal period) with a gradual return to normal.

The cortical discharge may remain local, in which case the clinical manifestation is of local character. The electrographic picture of a local epileptogenic area of discharge is characterized by random spike discharges, representing the abnormal synchronization of groups of neurones.

A local discharge may spread to other parts of the brain in two fashions: 1) a slow spread by contiguity to immediately adjacent portions of the cortex, much like a brush-fire, the clinical manifestations appearing serially as in the "march" of a Jacksonian seizure; or 2) by spread to other cortical areas or to subcortical nuclei through neuronal pathways, i.e., via white matter. Thus a seizure, initially focal, may become generalized.

Not all seizures are due to local discharge in a restricted area of the cortex. Some seizures seem to involve the whole brain simultaneously. Thus the seizures of classical petit mal are characterized by synchronous, rhythmic spike-wave discharges in both hemispheres, beginning and ending abruptly. Experimentally it has been shown that both the electrographic and the clinical features of such seizures may be evoked by local discharge in restricted areas in the upper brain stem and diencephalon. Grand mal seizures, too, may be evoked by discharge in these areas which appear to exert an influence over widespread

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regions of the brain.

The cortex and subcortex are intimately related anatomically and physiologically. They do not function independently and in isolation. A seizure beginning in the cortex may become generalized by activation of the subcortex, and one beginning in the subcortex may produce local or widespread disturbance of function of the cerebral cortex.

The actual clinical manifestations of a seizure depend on the parts of the brain involved in the epileptic discharge. From the anterior frontal lobe we may see adversive seizures, from the Rolandic region, sensory or motor Jacksonian, from the occipital lobe, simple visual hallucinations, and from the temporal lobe, hallucinations of sound and vertiginous sensations. Complex hallucinations and illusions arise from discharge in the temporoparietal regions. The automatisms and other phenomena classified as psychomotor or "epileptic equivalents" appear to be evoked by discharge primarily in the "old brain", the rhinencephalon and associated nuclei. The list of epileptic manifestations is almost endless and, since all activities of the brain involve widespread and complex integrations, any attempt at precise localization as though the brain were made up of isolated or loosely connected "centers" is an over-simplification.

There is, as yet, no adequate information as to what makes an area of the brain epileptogenic and what factors determine the "triggering" of the occasional, sudden discharge we call a seizure. Various mechanisms have received consideration, such as genetic predisposition, the endocrines, electrolyte shifts, emotional stress, and the abnormal metabolic functioning of damaged brain cells. It must be confessed that, as yet, the essential nature of the disturbance of epileptogenic nerve tissue is unknown.

Pathological Aspects

EDWARD P. RICHARDSON, JR., M.D.*

Pathology cannot be expected to elucidate the fundamental nature of so active and dynamic a process as the epileptic discharge. Nevertheless, its methods are of great value in delimiting some of the disease states under which this discharge may occur.

In many cases of epilepsy there are no demonstrable relevant pathological changes in the brain.

However, epilepsy may be a manifestation of a wide variety of focal brain lesions. Neoplasms of all sorts, whether primarily arising within the brain or meninges, or metastatic from elsewhere, represent an extremely important form of epileptogenic lesion. Another well recognized and well studied form of epileptogenic lesion is the cerebral scar resulting from trauma to the brain. Although it is often thought that epilepsy is a rare complication of vascular

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lesions in the older age group, our studies have shown us that recurrent seizures may be encountered in some 25% of cases of old infarcts involving the cerebral cortex. Seizures did not occur in any of our cases of vascular lesions which did not involve the cortex. In our experience, cerebral hemorrhage is a far less common cause of seizures than infarction, presumably because death occurs early in these cases, and the cortex is less often involved. In our material, cerebral embolism was the most commonly encountered basis for the infarction in the cases with recurrent seizures, probably because emboli, rather than local thrombosis, seem to be the most significant cause of small cortical infarcts. Venous thrombosis of dural sinuses and cortical veins, with infarction, is another form of vascular lesion that is frequently accompanied by seizures.

It is quite clear that some cases of epilepsy can be ascribed to cortical lesions acquired at birth or early childhood. It is always difficult in these to know what the original pathogenesis of the lesions was, since all one sees is the scar of a process long since past.

Common to all these lesions—whether neoplastic, ischemic, traumatic, or inflammatory—is destruction of areas of cerebral cortex. Obviously, no epileptic discharge can arise from an area in which all the neurones have been destroyed; the discharge must, then, come from nearby areas in which an abnormal physiological state of the neurones exists. We still have no certain knowledge as to what determines this state. Penfield's studies suggest that a disorderly scar in which fibrous connective tissue and glia are intermixed is more likely to give rise to seizures than a cleanly outlined one, but this explanation does not account for the seizures that are encountered with such relatively neat, well circumscribed lesions as are characteristic of many cerebral infarcts.

Another form of cerebral lesion that is an important cause of recurrent seizures is a congenital vascular anomaly of the cortex (angiomatous malformation). These are made up of irregular tangles of vascular channels among which varying degrees of cortical destruction are generally encountered. Unless there is rupture of vessels with subarachnoid hemorrhage, such a lesion may go undetected throughout the patient's life.

Discussion of rare forms of degenerative disease of cortical neurones has been omitted; as would be expected, seizures may be a prominent feature in such conditions. The occasional recurrence of seizures in multiple sclerosis and related conditions, which principally affect nerve fibers, may seem at variance with the previously stated principle that seizures with cerebral disease are associated with changes in the cortex; careful pathological study of cases of multiple sclerosis with cerebral lesions, however, often discloses some evidence of abnormality in the cortex as well as in the white matter.

Finally, mention should be made of the possible pathological consequences of seizures, whatever their underlying cause. Severe, prolonged, intractable seizures may result in diffuse damage to the gray matter, principally the cerebral and cerebellar cortex, which is pathologically indistinguishable from the effects of severe acute cerebral anoxia. Respiratory embarrassment, and possible increased metabolic demands of the abnormally discharging nerve cells, may

underlie these changes. It is thus imperative that seizures be brought under control, so that such disastrous effects may be avoided.

Neurological Aspects

JOSEPH M. FOLEY, M.D.*

Epilepsy is a term employed to designate that aspect of many diseases of known and unknown cause in which there occur symptoms variable in their manifestations but having in common a paroxysmal alteration of excitability of part or all of the gray matter of the brain.

The patient with epilepsy or suspected epilepsy should be investigated in the same way as any other patient with any other medical problem. History, physical and mental examination, and basic studies of blood and urine are the patient's right and the physician's duty.

The history in a case of epilepsy should concentrate on three aspects: the spell itself, the pattern of the spells over a period of time, and all those other items which might yield a clue to the cause of the symptoms.

The modern practitioner has no difficulty recognizing by history the classical convulsion of grand mal epilepsy or the classical absences of petit mal epilepsy, but some common errors of interpretation are still made with frequency. All small spells are not petit mal. Petit mal probably never begins in adult life. Such small spells in the adult are usually automatisms of focal cerebral origin. Paroxysmal disorders of behavior due to temporal lobe foci are misinterpreted as hysteria, malingering, or schizophrenia. Of greatest importance in the historical analysis of the spell is whether there is a consistent focal onset, for such an onset means that there is a focal lesion of the brain. A generalized onset, on the other hand, does not mean that there is no focal lesion.

Intelligent investigation and therapy cannot be undertaken without a knowledge of the pattern of the spells in time. The patient who has mild weekly attacks is a different therapeutic problem from the patient who has status epilepticus every 18 to 24 months. In estimating the temporal pattern of spells, the importance of abortive attacks must be recognized. For example, a patient may have only two convulsions a year. These convulsions may be preceded by a momentary foul odor, which may occur without the convulsion three or four times a week. The odor is an attack without the momentum to carry itself through to a convulsion. It must be recognized as such in planning further investigation and therapy.

Clues to the cause of the symptom may unfold themselves in the complete history. A relation of the spells to fasting may mean hyperinsulinism; previous head injury may mean a cerebral scar; a mild mental deterioration may mean paretic neurosyphilis.

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The physical examination must be complete. The importance of the neurological examination is obvious. But the rest of the examination may provide the clue to the cause of the epilepsy. Sebaceous adenomata of the face may identify tuberous sclerosis. The cherry-red spot at the macula of an infant means Tay-Sachs disease. Blood in the urine may mean a renal cell carcinoma metastatic to the frontal lobe.

Under ordinary circumstances, if the cause of the epilepsy is still obscure, other studies must be undertaken, but the judgment of the physician allows a wide latitude. Generally, lumbar puncture, chest film, skull films, and EEG are desirable. Pneumoencephalography and arteriography are undertaken too lightly in many clinics. They are not without risk and in relatively few cases of epilepsy are they necessary. They should be undertaken only when there is reasonable expectation that they will provide information to the patient's benefit.

Treatment

DOUGLAS T. DAVIDSON, M.D.*

Few chronic diseases respond as happily to modern treatment as does epilepsy. Because the ketogenic and other special diets are troublesome to administer and because drugs have in general been much more successful, anti-epileptic drugs are today the keystone of modern therapy. These are usually potentiated by satisfying and continuous mental and physical activity, good emotional adjustment, improvement in general health as for example, by observing the well established hygienic rules and eliminating such sources of chronic infection as may exist.

One cannot predict the best drug for a particular patient and therefore this must be determined by actual trial. The prime objective of treatment is maximum seizure control with minimum impairment of mental efficiency. The least toxic drug is tried first by the patient-physician team, and dosage should be started at one-third of the maximum and should be increased at monthly intervals until either seizures are completely suppressed or evidences of toxicity appear.

If there has been no improvement at the end of one month of trial on full dosage, the drug should be replaced by the next safest drug. If the first drug has been partially helpful but does not completely suppress attacks, the second drug may be added to the first and the dosage increased until either seizures are completely suppressed or evidences of overdosage appear. The fullest potentialities of maximum dosages with each drug must be explored before turning to another medicine.

For the convulsive seizure pattern one usually begins with phenobarbital. The dosage is increased gradually so that tolerance to the medication may be acquired as the dosage is increased, usually two weeks experience on a given

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dosage will produce maximum tolerance for that drug.

If additional help is needed or if phenobarbital does not produce any benefit, then Dilantin is the second drug to try. If neither Dilantin nor phenobarbital alone can control the attacks completely, then a combination of the two may do the job especially in a dosage of one part phenobarbital to three parts of Dilantin.

A second choice in place of phenobarbital would be Mebaral, but Mebaral must be given in twice the dosage of phenobarbital to produce comparable therapeutic benefit. As a second choice to Dilantin, the new Ayerst, McKenna and Harrison preparation, Mysoline, 250 mg. tablets may be used.

For the treatment of the petit mal seizure pattern, the drug of choice is the new Parke, Davis preparation, Milontin, which comes in half gram capsules. Second choice is Diamox, the Lederle drug which comes in 250 mg. tablets.

When it comes to the use of medications which are potentially toxic, Mesantoin (Sandoz) 100 mg. tablets may be tried for the control of convulsive attacks and probably Tridione is the best bet for the control of petit mal attacks. In the use of both Mesantoin and Tridione an initial white count and differential smear and one each month thereafter is a minimum requirement for preventing serious degrees of bone marrow depression in the occasional drug-sensitive patient.

Depression of the bone marrow, particularly of the platelets or neutrophils, the appearance of an erythematous, usually pruritic, rash in from eight to twelve days, depression of the appetite or general malaise as in early liver toxicity, or the development of psychotic symptoms require immediate withdrawal of the offending drug and a maximum dose of phenobarbital is given daily for two weeks to prevent a precipitation of status epilepticus.

The best results in the treatment of epilepsy can be obtained only by adapting the type of medication and the dosage of the drug to the individual patient's needs and tolerance. Patients' requirements are as specific as are the individual diabetic's requirement for insulin. Probably between 75 and 85 per cent of all patients who have convulsive seizures can obtain adequate control of attacks either by the use of phenobarbital or Dilantin or a suitable combination. Sixty to seventy per cent of patients who have petit mal can expect control using one of the drugs specific for petit mal. These results can be obtained by the family physician without recourse to consultation with a neurologist or other type of specialist.

The differential diagnosis between the various types of minor seizures is important because of the difference in therapeutic agents which are required, for example, for the control of psychomotor and petit mal attacks. See the attached list of anti-epileptic drugs for details.

Finally, in the treatment of a prolonged convulsion the prompt administration of adequate doses of rectal paraldehyde affords an easy, safe, prompt and effective method for handling a difficult situation. The method has special application in the treatment of febrile convulsions in infancy when cessation of the convulsion may be expected within five minutes following the rectal administration using a rubber ear syringe.

Panel Discussion

ROBERT S. SCHWAB, M.D.*
Moderator

Moderator Schwab: Ladies and Gentlemen, you have this Panel of experts, and Dr. Lennox, the expert of them all, and I hope that you will ask questions of all sorts.

Question: In an epileptic, will the use of Dilantin cause excessive loss of weight in the patient?

Moderator Schwab: This is for you, Dr. Davidson.

Dr. Davidson: Excessive doses of medication may produce anorexia and, of course, weight loss on that basis is possible. I do not know of any specific toxic effect of Dilantin which would cause weight loss.

Question: No. 4-A? Under what conditions can epileptics obtain their driver's license in Massachusetts?

Dr. Foley: The Registry of Motor Vehicles, if they find the person is epileptic, write the patient a letter saying that before he can be tested for a driver's license, he has to have a letter from a neurologist. The neurologist then sends the letter to the Registry, and in most instances, the Registry is guided by what he says.

I might tell you about an alcoholic boy of nineteen, who had four seizures a week, with no warning whatsoever; he is no problem. I write a very unfavorable letter, the Registry concurs.

The other extreme is a young minister of the gospel who has seizures twice a year, with a warning of about 15 seconds in advance, and a sort of curious feeling for several hours, that he might have a spell; he absolutely needs his car to continue doing his parish work in an area in western Massachusetts. Again, there is no problem there. For my part, I felt that he should have a license. The Registry concurred, and he was given the examination. I don't know the precise rules that guide the Registry, but I do know that their attitude is an intelligent one in my dealings with them.

Dr. Davidson: In May 1954 there were a total of 396 epileptic drivers operating on limited licenses according to the figures of the Motor Registry. That means there are 396 people, the Massachusetts Registry *knows* have had epilepsy and whose attacks are now well enough controlled so that they can safely operate a motor vehicle.

Question: 9-B. What is the minimum clinical investigation and laboratory tests required in a case of epilepsy, after the age of forty-five?

Moderator Schwab: That is a neurological question. Dr. Merlis.

Dr. Merlis: The minimum clinical investigation, as Dr. Foley pointed out, is an adequate history, coupled with a good, general physical examination, which includes, of course, a neurological examination.

The history may give you some hints as to further investigation.

Question: But, suppose it doesn't; suppose the physical examination doesn't either. You just have the patient.

Dr. Merlis: In that case, you might go one step further and do an L-P, and

in addition, the urine and blood examinations, an x-ray of the skull, and an electroencephalogram. Unless other evidence of involvement of the nervous system is found, that is, evidence of progressive involvement, I don't think that further investigation would be necessary. Further observation of the patient would be indicated, but further immediate investigation would not be.

Dr. Richardson: Wouldn't you include an electro-encephalogram?

Dr. Merlis: Yes; that goes without saying.

Dr. Foley: In some cases. You know, they cost money. Every so often, you see a patient with a clear-cut story of spells that haven't changed in the last four or five years and he has no evidence of any progression or deterioration of his physical or mental state. I see no real reason for demanding an EEG under such circumstances.

I grant you that, ideally, I would rather have it. But I think that you apply the same rule that applies to all laboratory tests; you demand it only if you think it important.

Moderator Schwab: I should like to ask Dr. Sargant whether, in England, the work-up of an epileptic is any different under the Health Plan, from what was discussed.

Dr. Sargant: Well, money doesn't come into the picture very much, and if you want an EEG, you always get it. It is a very great value to the physician and also to the patient, I would say.

Question: C-37. How long should one remain on anticonvulsants when there are no further seizures?

Moderator Schwab: Dr. Lennox, do you want to answer that question?

Dr. Lennox: We have a general rule that if a patient goes a couple of years without a seizure, and then has an EEG that is relatively normal, then we stop.

Moderator Schwab: Dr. Talbot, do you have any comments to make with regard to children?

Dr. Talbot: I would say two years, also.

Moderator Schwab: That seems to be a general idea. I understand that in Norway, they have the same thing, two or three years without seizures, and they begin to take them off the anticonvulsants.

Dr. Merlis: It is my own principle to discuss the matter with the patient, and point out the possibilities of recurrence of the seizures if medication is decreased or removed entirely. I let him make the decision as to whether he would rather take the risk of another seizure or continue to take the medicine, which, in most cases, is non-harmful to the patient, and can always be said to be similar to taking vitamin pills.

I find that when one does that, many of the patients would prefer to continue on the medication, rather than to run the risk of another seizure.

Dr. Foley: May I make an important point there? One of the common errors made in discontinuing medication is to go only on the basis of the large spells. It is very important, I think, to get a history of even the abortive seizures. I am sure the whole Panel would agree that an abortive seizure, has the same significance as a full-blown seizure, in terms of when to discontinue medication.

Moderator Schwab: I should like to amplify the discussion by saying that you should also consider the work of exposing the patient to the public, in making the decision. If it is a man, working in a factory where there is a lot of machinery, he would be in greater

jeopardy than somebody working as a clerk in a store. I think that Dr. Lennox would agree with me that that should be taken into consideration.

That is why I like to share the responsibility with the patient, as Dr. Merlis does.

Question: If a patient were having spells fairly infrequently, wouldn't you want to go to a longer time, to be sure?

Dr. Foley: I agree completely. If a patient is having infrequent spells, let us say, spells once a year, it might be better to wait four or five years until he is seizure-free. Of course, with this group of patients, you are in a difficult position, because you don't know if medication is doing them any good anyhow.

Question: C-45; what is the best treatment of status epilepticus?

Moderator Schwab: Dr. Davidson would you like to speak about that?

Dr. Davidson: For the average pediatric patient with *status epilepticus*, one of the first things to try is paraldehyde and oil by rectum. We see status most commonly in connection with a fever. Rectal paralydehyde is easy to administer, and it is rapidly effective, usually within five minutes. Sodium phenobarbital, intramuscularly, may be used. Dosages are given on the following charts.

The important thing about treating *status epilepticus* is to realize that it is a medical emergency because irreversible changes in the brain may be produced in the course of prolonged status. Therefore it is essential initially to use big enough doses to stop the attacks. Do not wait longer than 20 to 30 minutes before using anesthesia. An attack can always be stopped with general anesthesia, either by injection or by inhalation.

Dr. Hamlin: One of the most important things in managing a patient in status is the maintenance of a good airway.

Dr. Foley: May I enter a slight, dissenting note, here, which I don't think is dissension at all, but is rather a matter of terminology. I think that there is a kind of status epilepticus that is not particularly exhausting to the patient. In cases of status that have come to autopsy, I have the distinct feeling that they may have died of over-treatment rather than of physical exhaustion or cerebral anoxia.

Certainly, the patient with repeated, generalized convulsions must be treated vigorously, in order to prevent brain damage. Yet, on the other hand, patients having mild seizures, without recovery of consciousness, still have status epilepticus.

Over-treatment may kill the patient. It is often better to wait for the natural momentum of status to subside.

Question: And what about the use of magnesium sulfate intramuscularly?

Dr. Davidson: I am not familiar with its use except in the case where convulsions accompany hypertensive encephalopathy, where it seems to be quite helpful.

Question: Would you give morphine?

Moderator Schwab: That is very important. Dr. Foley, please comment on that question.

Dr. Foley: I would say that under no conditions should you use morphine or demerol; they should not be given in the treatment of status epilepticus. They are respiratory depressants and as such are contraindicated.

Moderator Schwab: I should like to second that. I think that more harm can be done by giving morphine in such a condition than no medicine at all. I

would suggest that intravenous or intramuscular Dilantin be used. It doesn't depress respiration, and, in some cases, it is quite effective.

Dr. Foley: Even with oral Dilantin, it is possible between spells to put a tube down without much difficulty, and get in a generous supply of Dilantin in the stomach.

Dr. Merlis: May I add a word, that the barbiturates are not interchangeable. Very frequently, Nembutal or Amytal, intravenously or intramuscularly, is used as a substitute for sodium phenobarbital. Actually, all data indicate that phenobarbital has a much greater anticonvulsant effect than the other barbiturates.

Dr. Sargant: During the emergencies of war we found that paraldehyde can be given intramuscularly if necessary which might be better than giving it rectally in certain circumstances.

Dr. Foley: I hate to be a chronic dissenter, and I hate, especially, to enter an opinion divergent from that of our distinguished colleague from England; but, our experience with intramuscular paraldehyde at the Boston City Hospital has been catastrophic. We have had several instances of necrosis of the sciatic nerves. In some instances, paraldehyde near a nerve, not in it, may be capable of inducing necrosis.

Dr. Sargant: We teach our nurses never to inject anything near the sciatic nerve; there are large areas in the buttock away from this region where it may be injected to prevent such disasters.

Question: How do you overcome the great pain in the use of paraldehyde?

Dr. Sargant: You give it deeply into the muscles of the buttock.

Question: What about the psychiatric adjustment of the child whose seizures are controlled by medication?

Miss Rathbun: Such a child's adjustment to epilepsy is actually contingent upon several factors of which control of seizures by medication is only one. Others would be: the feelings of the mother who is often guilty about having produced an epileptic child and so tends to over-protect him in many different areas, the reaction of the peer group, especially his school-mates, the attitude of his teachers, and the degree of anxiety the child himself has about the possibility of a seizure occurring under conditions of stress. The child's behavior would undoubtedly be a resultant of all of these different factors.

Question: D-53. What is meant by the epileptic personality?

Dr. Sargant: I think that everybody agrees there is no typical epileptic personality. You are dealing with a variety of personalities who get epilepsy. Different people are then affected differently.

For instance, to mention the amount of obsessionality seen in epilepsy. Obsessionals may take the epilepsy much more seriously than the normal person, and fits may increase their obsessional tendencies.

In the mental hospitals you do get more people with grandiose, impulsive and quickly changing moods. But, I think that many of these may be, in fact, temporal lobe epilepsies.

I think that there are many quite normal people with epilepsy, once the seizures are controlled.

Moderator Schwab: Would you like to comment on that, Dr. Lennox?

Dr. Lennox: Just as with the previous question, I think that what is called an epileptic personality is not epileptic, but brain damage or mental defect that results in an abnormal type of behavior.

As Dr. Sargant said, these cases are

common in institutions. Thirty or forty years ago, when people knew only about institutional cases, the idea was widespread that epileptics had a fundamental and distinctive disturbance of the personality.

With all of these questions, we have to remember that there isn't any just-average case; persons vary from one extreme to the other. Hence, we hedge our answers, and expect to see exceptions for almost any statement that we make.

Question: What about the child who wants to use his bicycle, and the child who wants to go in swimming, or who wants to go fishing?

Dr. Talbot: While one would like to be as liberal as possible, epileptic children ordinarily should not swim, bicycle on roads used by cars or go horseback riding unless the epilepsy is under satisfactory control and unless the child is accompanied by a responsible adult.

Question: A-7. Should epileptics marry and have children?

Moderator Schwab: Dr. Lennox has the most information on this subject.

Dr. Lennox: I would answer it, in keeping with my previous remarks. Some patients should marry and have children and some should not, and each patient has to be considered on his own evidence.

In the first place, whom is he or she going to marry? Is there any history of epilepsy or migraine in the fiance's family? If he wants every bit of evidence, he can have an EEG of his fiance.

If a brain injury caused the seizures, heredity is minimal.

The person whose epilepsy began early in life, especially if convulsions were febrile, has an unusually large heredity, as measured by the number of relatives with epilepsy.

If the person is one whom you would like to see reproduced, the answer to the question of marriage would be "Yes".

Also, we must remember that although there is a tendency to seizures, which is transmitted, the tendency is no greater than for many other conditions. For example, rheumatoid arthritis is about as frequent as epilepsy and the heredity factor is about the same. There is about one chance in thirty that any given child of an epileptic will have one or more seizures. About half will have only one or two. So that the chance that the person will have a relative or offspring with chronic epilepsy is only one in sixty or seventy.

Question: I should like to ask a question that is not in the questionnaire. Being in a neuropsychiatric hospital, I feel, of course, the black picture of epilepsy, but I am still interested in the prognosis especially in the chronic brain syndrome with epilepsy and psychosis. In the patient who shows only epilepsy and deterioration, how is the prognosis in general made and how does this, statistically, lead to the black picture?

Moderator Schwab: Dr. Merlis, would you like to answer that question?

Dr. Merlis: I am afraid that I cannot give any statistics. It has been our impression that most patients who show considerable deterioration have an underlying brain syndrome, of which epilepsy is only a symptom. However, as has been pointed out, with severe and recurrent seizures, it is possible that there may be anoxia of the brain leading to atrophy.

If we take the epilepsy population as a whole, I would say that most patients can be controlled adequately on medication, and there is no reason to fear deterioration. The prognosis is excellent

in most cases.

Dr. Sargant: With reference to temporal lobe epilepsy we are suddenly starting to realize that we, in England, may have 40,000 temporal lobe epileptics and I think a great number of these are in mental hospitals since they may show a lot of general personality disturbance and many of them will need nurosurgery.

Moderator Schwab: Could you comment on that, Dr. Hamlin?

Dr. Hamlin: I am somewhat astounded at Dr. Sargant's estimate of 40,000 temporal lobe epileptics in England who may have to be considered for surgical treatment. This condition is now thought to have been caused by birth injury, incisural pressure causing prolonged temporal lobe ischemia. It is an attractive hypothesis which seems to have been demonstrated by Dr. Penfield. We have many potential candidates both in state hospitals and prisons in whom temporal lobe surgery may be promising. We must follow patients for at least 5-10 years following operation for brain scars. Good results seem to be obtained in about 35 per cent of those followed for 10 years. Many of these patients could probably be as well controlled by drug therapy.

The role of the neurosurgeon in this panel belongs on the fringe and he would like to remind you again that epilepsy is a symptom, and that if you encounter a patient of 45 who has an unprecedented seizure, you should suspect a focal lesion that might refer him to the neurosurgeon. If he has no localizing signs, he should be followed with a probable focal lesion in mind. If the patient does have a tumor, you may make things easier for him if it is discovered as early as possible.

Question: Do you make it a policy to admit to the hospital a child in his first convulsion?

Dr. Davidson: Each case needs to be handled individually. The youngster who has a very prolonged initial convulsion or one which is followed by neurological sequelae, particularly weakness of one side, a suppression of speech, prolonged stupor, such a youngster, I believe, warrants an immediate work-up even with his first attack. However the infant who has a very adequate infection, a high fever and a brief convulsion, without focal concomitants will probably never have a recurrence and study will usually be unproductive.

Older children in whom there is no adequate precipitating cause should have at least a careful neurological appraisal and an electroencephalogram.

Question: What about the distinguishing points between epilepsy and tetany? Question B-12 (b)

Dr. Foley: I think that, subject to correction by Dr. Talbot on this one, there are two kinds of syndrome that are likely to occur in tetany. First of all, there is hypocalcemia tetany, which is capable of giving an alteration of excitability in the peripheral nerves. In children, especially, it may produce a heightened central nervous excitability.

The most satisfactory diagnostic differentiation, of course, is by determining, first of all, the clinical presence of other signs of tetany, and secondarily, by determining the presence or absence of hypocalcemia.

The second syndrome is rather a different thing. As you know, there are some seizures that are true, cerebral seizures, precipitated by hyperventilation. On the other hand, a more common kind occurs, generally, in the young female, and generally represents itself as

an attack in which there may or may not be a loss of consciousness, but in which there may be some vagueness about the attack, in recollecting upon it, which is associated with other manifestations of anxiety, and which is easily reproduced within a minute or seventy-five seconds of hyperventilation. This is usually unassociated with any cerebral discharge on the electroencephalogram, and, in such a situation, the EEG is of great value, indeed. Tetany, from hyperventilation occurs, not as a part of hysteria, but as a part of anxiety, and the patient who has such an attack has other concomitants of the anxiety state.

Question: B-15. How often is the EEG normal in patients with seizures?

Moderator Schwab: I want to make a comment on that. Dr. Abbott and I found that about 20 per cent of our group of 120-off patients had normal interseizure records, even with overbreathing as an activating agent, and other workers have arrived at approximately the same percentage, between 15 per cent with the normal records, and one series in the armed forces as high as 35 per cent.

So that it depends somewhat on your criteria of normal, and whether or not you use activating procedures in the EEG, rather than hyperventilation. I think that you would lower the percentage if you used stroboscopic measures.

Dr. Merlis, would you like to comment on that?

Dr. Merlis: I think that the crucial word is "normal" there. Various people have set up different criteria for normality and abnormality in the EEG. There are certain abnormalities which are nonspecific. These may have a somewhat higher incidence in the epileptic population, but they occur in a significant percentage in the non-epileptic population.

If one includes all such borderline abnormalities, one gets a higher figure for abnormalities in the EEGs of epileptics. If one confines one's self to the more specific abnormalities, the high-voltage spike or spike-wave, the high-voltage slow wave discharge occurring in paroxysmal bursts, the percentage is much smaller. With the routine EEG including hyperventilation routinely, only something like 35 per cent of our patients showed seizure discharges. This percentage could be doubled by using sleep activation and metrazol activation, so that, using the common methods of activation, we found something like 70 per cent of our epileptic patients showed definitely abnormal EEGs.

Dr. Lennox: You could double it by using children.

Dr. Merlis: I should say that this is correct.

Question: Suppose a man in his late fifties or late sixties never had any seizures, but he faints, and falls over the bed. Would you call that an epileptic equivalent?

Moderator Schwab: That is a very good differential point. But, if one faints, then in my opinion, that would not be an epileptic seizure. A good history, a physical examination, a blood count and urinalysis are necessary.

Question: You have a patient with focal epilepsy; how do you decide that he may have a meningioma, and how do you decide whether to send him to a big neurosurgical center or to give him dilantin and phenobarbital?

Dr. Hamlin: I think that if you suspect anything like a meningioma you will have the concomitant signs to go with it because a meningioma, to pro-

duce a seizure, has to be of sufficient size to announce itself in other ways. You certainly would want an EEG.

Question: Should you suspect it in every one with focal epilepsy?

Dr. Hamlin: No; I don't think so.

Dr. Merlis: I think that the major point to be made is that the seizure cannot be considered in isolation. We must think of the patient's history, and, as Dr. Hamlin has pointed out, whatever else we see in the patient. Are we seeing the development of progressive neurological involvement, or more or less the *status quo*, with occasional focal seizures? What sort of history do we have? Do we have a head injury, for example? Do we have the description of the seizure itself and the EEG? None of these, in itself, will tell us. It is like making a diagnosis in any other field of medicine. We must have an adequate history and consider the whole picture.

Dr. Foley: Operation does not necessarily reduce the likelihood of fits after the tumor has been removed. The fits may continue, and, indeed, in some instances, be even more severe. I am sure that Dr. Hamlin will agree with me that if the general neurological signs are normal at the bedside, it is highly unlikely that pneumoencephalography or arteriography is going to turn up anything that the surgeon will want to do anything about.

Moderator Schwab: I should like to ask Dr. Richardson, who is also an expert neurologist, to comment on that matter.

Dr. Richardson: I should like to emphasize that on the basis of our experience some of the elderly patients who develop focal seizures have these as the result of vascular lesions. Our studies have clearly shown us that recurrent seizures may be the only residual neurological effect of cortical infarction. In attempting to determine the nature of seizures in late life, one has to be much guided by the considerations already mentioned in previous discussions. The principal clue to the diagnosis of a surgical lesion is evidence of a progressive course. If, on the other hand, there has been improvement in any initial neurological signs, with recurrent seizures as the only residual sign of cerebral disease, one can feel confident in conservative management, without having to undertake extensive diagnostic studies. The EEG can be of great value in such a case, because a progressive lesion may show up as progressive changes in serial EEG records. Even more important is clinical observation, with close attention to symptoms and signs. The clinical evaluation should probably also include a lumbar puncture with careful measurement of pressure, cell count, protein determination, and for completeness, a serological test for syphilis in the fluid. In doubtful cases, more extensive studies may be necessary to exclude an expanding lesion. However, elderly people with vascular disease tolerate arteriography and pneumoencephalography poorly, so that such procedures should not be undertaken without careful preliminary clinical and electro-encephalographic evaluation of the case.

Question: 63. Is epilepsy a serious problem in the placement of a child in a foster home?

Moderator Schwab: This one is obviously for you, Miss Rathbun.

Miss Rathbun: Yes, I think it is a rather serious problem because most foster parents are afraid of epilepsy, attaching a certain social stigma to it.

With the child it is often associated with other behavior problems so that the combination of the two makes it difficult for many foster parents to accept the total child.

For the younger child, that is either pre-school or through the age of ten years, it is not as difficult to find good foster parents. Those who have been trained as nurses can often be used in this capacity. But when one tries to place the older child who has the adjustments of adolescence added to a special medical problem at a time when he faces separation from his own parents, it is increasingly difficult to find a foster home with the right emotional climate provided by foster parents who can deal wisely with these inter-related factors.

Moderator Schwab: As it is now 5:15, and we have gone over our time, may I ask if there are any other questions? If not, with your indulgence, we shall have to conclude this session.

I do want to thank the members of the Panel Discussion very much for their fine contributions.

This session is now adjourned.

(Whereupon, the Thursday Afternoon Panel Discussion on "Epilepsy: Recent Progress and Practical Considerations" was then adjourned at 5:15 o'clock in the afternoon, on May 20, 1954.)

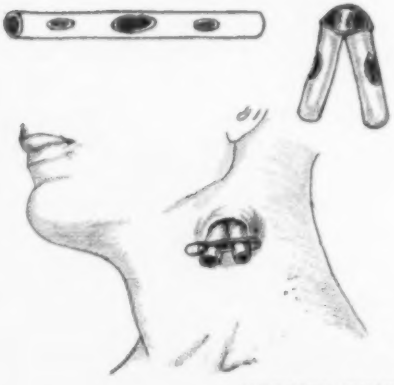
Clini-Clipping

The method of draining of a lymph gland abscess on the neck.

a. The abscess wall is punctured with a closed hemostat.

b. The blades of the hemostat are spread apart to open the abscess cavity.

c. Method of shaping and inserting a double-barreled rubber tube.



Clinico-Pathological Conference

New York University-Bellevue Medical Center Post Graduate Medical School, Department Of Medicine at Bellevue Hospital, Fourth Medical (N. Y. U.) Division

PATIENT M. M.

This is the 14th admission of M.M., a 50-year-old, Irish-American, married, childless, alcoholic who has been studied repeatedly on both L1 and B3 since 1947 for cirrhosis of the liver associated with portal hypertension and ascites.

Review of Admissions: *1947* — (L1) Pt. in B.H. for repeated paracentesis. A "peritoneal button" performed this year with marked success. (Old records are not available).

1948 — (B3) Pt. apparently did well for 6 mos. without requiring a paracentesis. In this year, she began a long series of repeated admissions and paracenteses up to the present admission.

(1) 2/20/48-2/23/48 — *ascites*—paracentesis 8,000 cc. straw-colored fluid.

(2) 3/8/48-3/25/48 — ascites. Black tarry stools were found on this admission.

Guaiac—3+, 3+, 4+

Chemistry—A/G 3.5/3.4 NPN 30, FBS 100, Chol/Ester 138/56 Alk. P'tse 9.8, CFT 9, I.I. 6

CBC: Hg 13.8 RBC 4.99 WBC 7.0 Normal differential

X-ray: Esophagram reveals no compression or deviation of the esophagus. No evidence of varices.

(3) 4/5/48-4/14/48 — ascites — paracentesis — 8,000 cc. straw-colored fluid removed.

Lab.:

CBC: HG 11.4 RBC 4.04 WBC 5,300 Normal differential.

Chem.: NPN 29. A/G 3.7/2.6 T. P. 6.2 CFT 0 I.I. 10 Chol/Ester 211/127 Alk. P'tse 10.3

EKG: Left axis deviation.

Chest: Heart not enlarged. Elevation of right diaphragm by enlarged liver.

(4) 5/24/48-5/28/48 — ascites with ankle edema. Paracentesis 13,000 cc. straw-colored fluid removed.

CBC: Hg 8.9 RBC 2.89 WBC 10,400 Normal differential.

(5) 7/12/48-7/13/48 — ascites—paracentesis, 6,000 cc. yellow straw fluid removed.

Chem: Chol/Ester 116/62, NPN 28

(6) 9/9/48-9/12/48 — ascites — paracentesis 3,500 cc. cloudy dark fluid re-

moved.

CBC: Hg 10.6 RBC 3.73 WBC 7,500 Normal differential.

Chem.: NPN 30

In all of the above admissions, patient presented herself with a tremendous abdomen with a fluid wave and shifting dullness. Rest of physical exam. is essentially negative.

1950

(1) 3/25/50-7/24/50 (Ward B3 & L1)—Patient re-admitted after a year's absence from BH with chief complaints of "weakness and swelling of the abdomen."

Physical Exam. BP 110/60 T 101.4 P 100 R 22

A w.n.w.d. female whose sclerae were icteric.

Lungs: Posttussic rales over left upper chest.

Heart: Normal.

Abdomen: Midline scar with an artificial pouch filled with fluid. Dilated veins over the anterior and lateral abdominal wall with flow being cephalad. Liver is 4 f. b. below the RCM and spleen is 1 flb. below the LCM.

Extremities: 4+ pretibial edema.

Hospital Course: 3/29—paracentesis —2000 cc. straw-colored fluid removed. That same night, patient started to vomit up bright red blood. She received blood transfusion during the next few days.

4/13/50 — paracentesis — 8,000 cc. removed.

5/6/50 — exploratory laparotomy for portal-caval shunt.

The findings at operation were "portal vein could not be identified and appeared to be fibrosed." Large spleen and liver present. Operation followed by uneventful postoperative recovery.

Laboratory Data

Blood	Hg	RBC	WBC	Tr	P	L	M	E	B
3/24/50	12.5	3.6	10.0	10	88	11	1		
3/27/50	11.0	3.18	7.5	1	78	17	4		
3/30/50			6.8	77	76	14	1		
4/10/50	9.0	2.56	6.4	14	60	24	2		
5/8/50	9.6	2.2	10.2		43	43	14		
5/13/50	13.0								
6/1/50	10.5								
6/8/50	13.0								
6/14/50	13.0								
6/16/50	11.0								
6/26/50	12.0								

Urine	color	S.G.	pH	Acet.	Sug.	Bile	Urob.
3/21/50	amber	1.014	acid	1	0	4+	1/80

Blood Chem.	Sug.	Prothrombin T.	NPN	A/G	Chol/Ester	I.I.	CFT	T.P.	Alk. P'tse
3/27/50	80		27	4.1/1.6	200/83	18	0	5.7	8.5
3/29/50				3.8/3.1	167/80	20	0		12.
4/17/50		17.2"		3.5/3.0	164/80	9	0		7.6
			BUN						
5/29/50		18.0"	16.3	2.9/3.9	167/98	11	24	6.6	13.0
6/14/50			7.4	3.4/3.7					
6/16/50	185	12.6"							
6/26/50		17.6"	10.3	3.8/2.9	224/115		tr.	6.1	

Lab. Blood Chem.	A/G	Chol/Esters	I.I.	CFT	Alk. P'tse	T.P.	Prothrombin time
9/22/50	3.5/4.1	152/84	6	4+		7.6	
10/14/50	3.5/3.9	216/128		2+	27.7		16"
12/18/50	3.7/3.8						

6/7/50—paracentesis—4500 cc.

6/15/50—Spleno-renal shunt performed by Dr. Lord.

7/24/50—Patient discharged after uneventful post-op. course.

Lab

CBC: Hg 11.5 WBC 7.8 Normal differential.

Chem.: BUN 9.0 Chol/Ester 167/96 CFT 0 Alk. P'tse 15.5

(2) 8/20/52-8/29/52—Infected hematoma of toe & ascites. Paracentesis 16,500 cc. removed.

Lab

CBC: Hg 11.5

Chem.: Chol/Ester 142/86 I. I. 6 CFT tr. Alk. P'tse 23.7 P.T. 17.1"

Present Adm. 1/3/52 Since her discharge from B.H., the pt. has been on home care and seen by visiting nurse b. i. w. when she received her liver and Mercuhydrin shots. Has been on salt-free, hi-protein, low fat diet for years? She had been going downhill, gaining so much weight that she could hardly walk. Denies hematemesis, malaise. Pt. has had S.O.B. and two-pillow orthopnea for at least 3 years. These symptoms are relieved after tap.

P.H. & ROS—Noncontributory

Social Hist. This pt. is a very difficult pt. to control as her outward personality is one of full cooperation with the physicians, and easy going mannerism which belies the patient's real self. Pt. never received any real salt-free diet. She has continued to drink wine up to the present admission.

Physical Exam. BP 150/70 P 90 R 28

Eyes: no icterus.

Abdomen: enormously distended with 3 large ventral herniae. Fluid wave and shifting dullness present. Liver not palpable due to distension. Bowel sounds heard. Large superficial abdominal veins.

Hospital Course: Because of the repeated operative procedures performed on the patient, it was thought advisable to have the surgery dept. tap the patient on 11/4/52. 16,500 cc. dark red fluid removed. Six hours later, patient went

Laboratory Data

Urine	Color	S.G.	pH	Alb.	Sug.	Bile	Urob.	WBC
11/5/52	amber	1.022	alk.	1+	1+	0	1/160	10-15
11/14/52	cloudy	1.020	alk.	1+	0			innum.

Blood	Hg.	RBC	WBC	Tr	P	L	M
11/5/52	8.5	2.09	14.3	10	50	32	7
11/17/52	10.0	3.0	17.4				

Blood Chem.	A/G	I.I.	CFT	Alk. P'tse	P	T.P.
11/8/52	3.1/3.8	18		13.1	4.7	6.9
11/12/52	2.8/2.4	12	0	10.2	4.3	5.7

into shock. Rx with Neosynephrin, whole blood and fluids. 11/6/52 — Patient started to complain of generalized pain. It was impression that patient had developed a localized peritonitis. Rx with penicillin and streptomycin.

11/28/52—Paracentesis 7,000 cc. removed. Uneventful recovery.

12/18/52—Seen on home care. Drinking wine and reaccumulating fluid.

12/30/52—Massive ascitis and dyspnea.

1/9/53 — Paracentesis — 18,200 cc. of straw-colored fluid.

1/11/53—Low grade fever. Fluid reaccumulating.

1/12/53—G.I. #1 and #3—Normal.

3/3/53—Fluid reaccumulating. Paracentesis reperformed.

3/24/53—Awakened at night — passed black material per os and rectum and expired.

Clotting time—6/23/50—7′

Spleen Biopsy — Chronic passive congestion of spleen

EKG—normal tracing

X-ray: 5/10/50—varices involving primarily the distal ½ of the esophagus. Many chest films reveal pneumonitis of left upper lobe.

After her discharge in 7/50, patient did well except for a draining sinus tract in area of left thoraco-abdominal scar which failed to close.

(2) 9/18/50-1/27/51 — Pt. re-entered because of (1) ascites and (2) draining sinus tract. 9/19/50 — paracentesis—8000 cc. 10/24/50 sinus tract removed, 12/23/50 — paracentesis — 1000 cc. removed. 1/16/51—paracentesis 7,700 cc. chocolate brown fluid removed.

1951

10/8/51-10/19/51 — Ascites—Paracentesis 4,000 cc. removed.

1952

(1) 4/10/52 - 10/19/52 — Ascites. There is a ? history of hematemesis. Paracentesis 14,000 cc. removed.

Case presented from the wards of the Fourth Medical Division, Bellevue Hospital, Dr. Charles Wilkinson, Dir.

Pathological Findings

At autopsy the patient's abdomen was greatly distended; super-imposed on this there was a midline, fluid-filled ventral hernial sac about 14 cm. in diameter. In addition, there was a massive sac-like protuberance of the right half of the abdominal wall; it was 75 cm. long and sufficiently pendulous to cover the upper third of the patient's right thigh. The skin of the abdomen and thorax showed extensive evidence of collateral circulation.

About 15 liters of fluid were found in the peritoneal cavity. The large sac on the right side of the abdomen represented fluid-filled subcutaneous space; it communicated with the peritoneal cavity by means of a Murphy button and an independent opening about 3.5 cm. in diameter. Both orifices appeared to be completely closed by fibrous adhesions.

The left rectus muscle contained a large abscess; the overlying abdominal wall was the site of several paracentesis scars. The peritoneum and the right-sided abdominal sac were lined by fibrino-purulent exudate. Thus the patient's death was indirectly due to her ascites. One of the paracenteses was undoubtedly responsible for the rectus

abscess; the latter, in turn, caused fatal peritonitis.

The liver showed marked portal cirrhosis. Continuing hepatic damage was indicated by the presence of considerable fatty change in the remaining hepatic cells. The anastomosis between the splenic and left renal veins was widely patent, and must have been adequately functional until the patient's death. *The failure of the shunt to prevent the continuous reaccumulation of ascitic fluid is consistent with the thesis that extra-hepatoportal hypertension plays a relatively minor role in the production of ascites* (1).

The patient's failure to follow the low salt diet which had been prescribed may have been more significant in this regard. (2).

The patient had a 3 cm. area of fibrocaseous tuberculosis in the left upper lobe of her lung. Although there was histologic evidence of slight recent local spread of the infection, the process was largely inactive and had not influenced the patient's course. Had she lived longer, it might have done so.

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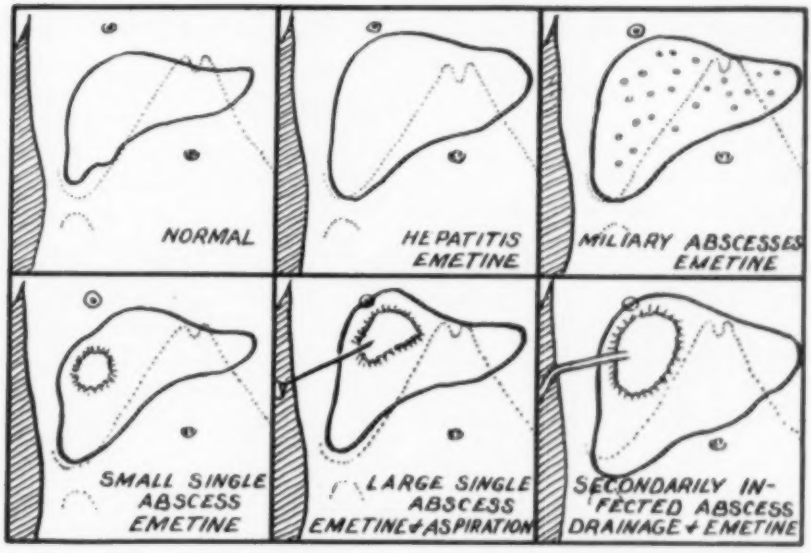
(1) Robert E. Hyatt and John R. Smith: The mechanism of ascites. Am. J. Med. 16:434, 1954. (March).
(2) W. J. Eisenmenger: The role of sodium in the formation and control of ascites in patients with cirrhosis. Ann. Int. Med. 37:261, 1952.

Clini-Clipping



Stages of liver involvement in amebic dysentery and treatment (according to Napier).

Bursitis of The Lower Extremity

Bursae are potential spaces which develop in connective tissue in response to functional demands. In a large series of newborn cadavers dissected (by Black), only the subacromial bursae were present, and these in only 72.5% of cases. The other bursae, both superficial and deep, develop after birth. Bursae contain a small amount of synovial-like fluid—just enough to permit movement of their opposing walls against each other without friction. Superficial bursae develop between the skin and bony prominences, to permit free movement of the skin over the bone. Deep bursae develop between muscles and moving bony points.

1. Diseases of the Superficial Bursae

A. Acute Traumatic Bursitis Mild trauma to a bursa produces no pathological change. However, severe external violence to a superficial bursa results in a tear or contusion of the bursa, with hemorrhage and exudation. The bursa fills with serosanguineous fluid, and becomes a well-defined fluctuant sac. The fluid is absorbed when the acute reaction subsides, but some fibrin usually remains and organizes, producing thickening and roughening of the bursa wall, and adhesions between its surfaces. Symptoms are tenderness, distention, and a history of trauma.

Treatment consists of immobilization with a plaster or metal splint or by bed rest; elastic bandage to prevent further swelling; cold compresses for 24-36 hours, then heat; aspiration of the fluid under local anesthesia, using a #18 gauge needle, and sedation and analgesia as required. Hydrocortisone acetate injected locally in the dose of 25 mgm. has been reported to be effective in some cases. Recurrence following repeated trauma, and progression to chronic bursitis are common complications.

B. Subacute and Chronic Bursitis Mild recurrent trauma, or incomplete subsidence of acute bursitis, results in fibrosis of the bursa wall. The wall thickens and trabeculae and villi fill the space. The amount of fluid is increased. Calcification of the bursa wall is not uncommon in long-standing chronic bursitis. Acute exacerbations of chronic bursitis often result from even mild trauma. Symptoms are 1) sharp pain in the area of the bursa following mild trauma, 2) thickening of the bursa wall, resulting in a rubbery consistency, 3) small, hard, tender, slightly movable villi within the bursa, and 4) a previous history of acute bursitis.

Differential diagnosis should include tuberculous bursitis, lues (gumma), suppurative bursitis (pyogenic and gonorrheal), and arthritis. Treatment

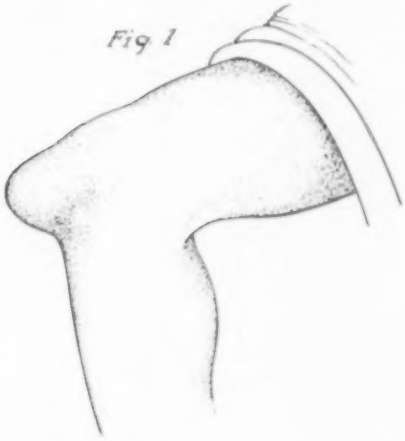
consists of 1) aspiration for relief of pain and for diagnostic purposes (The bursa usually refills within 24-48 hours.), 2) injection of sclerosing agents —Sodium morrhuate, e.g. (not recommended), and 3) excision, under local or spinal anesthesia (the treatment of choice in the presence of persistent symptoms).

C. Suppurative Bursitis results from 1) infection of a laceration or puncture wound of the skin over the bursa, 2) extension of contiguous infection (e.g., furuncle), and 3) blood-borne infection (uncommon). Pain, swelling, fever, and erythema are the symptoms. Lymphangitis often results. Treatment consists of 1) splinting, 2) bed rest, 3) moist heat, 4) incision and drainage (with culture of the material obtained), and 5) antibiotics. Excision should not be performed during the acute episode, but may be done when the infection subsides.

Prepatellar Bursitis The prepatellar bursa lies in the subcutaneous tissue over the patella and patellar ligament, and because of its superficial position it is easily traumatized, especially by persistent kneeling. Acute injury may produce acute bursitis, but chronic bursitis ("Housemaid's Knee") is more commonly seen, and is characterized by local pain, and prominent swelling over the patella due to thickening of its wall and effusion into the bursa (Figure 1). Tender, firm, slightly movable villi are felt after aspiration or subsidence of the effusion (Figure 2). The fluid is bloody if the bursa has been recently traumatized; it is serous or serosanguinous if the effusion is of longer duration. Repeated exacerbations and remissions of symp-

Chronic prepatellar bursitis.

Fig. 1



Chronically inflamed bursa, cut open after excision. Note thickened wall, and trabeculae and villi inside bursa.

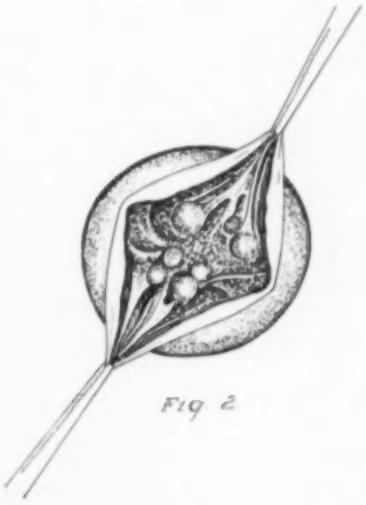
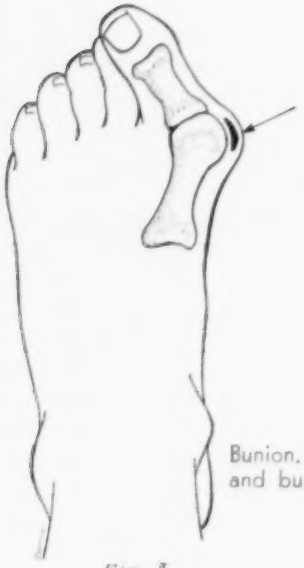


Fig. 2



Bunion. Note hallux valgus deformity; and bursa overlying hypertrophic head of first metatarsal.

Fig 3

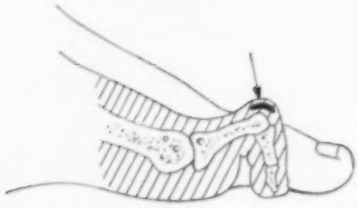


Fig 4

Hammertoe. Note subcutaneous bursa overlying prominent head of proximal phalanx.

toms are the rule.

Differential diagnosis should include gout, lues, and fracture of the patella. X-ray examination is recommended. Excision of the bursa is the treatment of choice for long-standing, symptomatic bursitis. This may be done under local anesthesia, but hospitalization is advisable. Immobilization, aspiration, and local injection of Hydrocortisone are useful measures in the acute episode. In the presence of infection, rest, heat, and antibiotics are used. Incision and drainage may be required.

Bunion A bunion is a painful chronic inflammation of a superficial bursa over the medial side of the head of the first metatarsal (usually over a hallux valgus deformity). There is swelling over the area and marked tenderness (Figure 3). Infection and sinus formation are occasionally seen. The only satisfactory treatment is excision of the bursa and the bony prominence of the head of the first metatarsal with section of the attachment of the adductor hallucis tendon. This may be done in ambulatory patients, but spinal or general anesthesia is preferable, and this necessitates hospitalization.

Achilles Tendon Bursitis A chronic bursitis occasionally develops over the Achilles tendon, from irritation by a tight shoe. Removal of the cause is usually sufficient, but the bursa may require excision.

Hammertoe A chronically inflamed bursa develops over the proximal interphalangeal joint of a hammertoe (Figure 4). The treatment is correction of the hammertoe deformity.

II. Diseases of Deep Bursae Acute traumatic bursitis of the deep bursae of the lower extremity is common, and may be due to direct or indirect trauma. Symptoms are pain on movement of the

nearby joint, weakness of the extremity due to pain, and tenderness and swelling over the bursa. Oft-repeated trauma or incomplete subsidence of acute bursitis often result in chronic bursitis. Symptoms are similar to those of acute bursitis, but are of longer duration. Calcification of the bursa wall is common. Chronic non-traumatic bursitis results from degenerative changes in the bursa wall.

Treatment of the acute episode consists of rest, local heat, sedatives, and aspiration. Incision and drainage may be necessary. Procaine injected locally often results in temporary relief of symptoms. Rest, diathermy, and local injection of 25-50 mgm. of Hydro cortisone are helpful in chronic bursitis, but excision of the bursa is the treatment of choice in the presence of long-standing symptoms. Hospitalization is required for excision.

The bursae which are most commonly symptomatic are:

a. *Supra-Trochanteric Bursa* (in the muscle planes above the greater trochanter of the femur). The onset may be spontaneous or may follow acute trauma. Symptoms are pain down the antero-lateral aspect of the thigh, which is increased by activity. There is a slight limp and local swelling and tenderness. Tuberculosis is a common causative agent in bursitis around the hip joint.

b. *Subgluteal Bursa* (between the greater trochanter and the gluteus maximus muscle);

c. *Iliopsoas Bursa* (between the capsule of the hip joint and the iliopsoas muscle);

d. *Ischiogluteal Bursa* (between the tuberosity of the ischium and the gluteus maximus);

e. *Pretibial Bursa* (between the quadriceps tendon and the tibial tubercle);

f. *Semimembranosus Bursa* (between the medial head of the gastrocnemius muscle and the semimembranosus tendon, and the postero-medial aspect of the capsule of the knee joint. It may communicate with the joint). Disease of this bursa is common in children ("Baker's Cyst") (Figure 5). It presents as a tender, tense, ovoid swelling on the medial side of the popliteal space with the knee in full extension, and partially disappears with flexion. The patient limps, holds the knee stiff, and complains of pain in the popliteal space, with radiation up the thigh and down the calf. The only satisfactory treatment is excision, and this should be performed in the hospital.

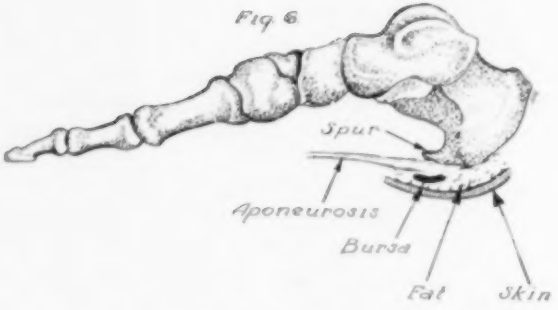
In patients past middle-age, this bursa occasionally acts as a "blow off valve", becoming distended with synovial fluid when the knee joint contains an effusion due to arthritis, etc. Treatment is that of the primary lesion. Excision of the bursa may result in a synovial fistula.

g. *Heel Bursa:* Painful heel in adults has been thought to be due to a bony spur over the tuber calcanei. However, the finding of a spur on x-ray is incidental, and of no particular significance per se. Pain on the under surface of the heel with walking is due usually to bursitis in the area of the tuber calcanei (and spur if present), or to painful tension on the plantar aponeurosis or flexor digiti brevis muscle which attach to the tuber calcanei (Figure 6).

Treatment by pads and springs to relieve pressure is usually unsuccessful. Rest and diathermy are occasionally helpful. Drainage of the bursa with a

Fig 5

Chronic bursitis of semimembranosus bursa (Baker's cyst).



Medial view of bones of foot, showing calcaneal spur and overlying bursa.

large needle, under local anesthesia, may relieve the pain. Infiltration of the bursa with procaine or Hydrocortisone also may be effective.

If symptoms persist, subcutaneous division of the attachment of the aponeurosis to the calcaneus may be performed under local anesthesia through a medial incision. After a week of rest and elevation of the extremity, the patient can usually walk without pain. Excision of bursa is rarely necessary.

EDITORIALS

The Role of Disease in Civilization and Culture

Rene Dubos, of the Rockefeller Institute for Medical Research, has discussed illuminatingly the influence of disease upon civilization and culture. Thus the defeat of Napoleon in Russia was in large measure due to the fact that his army was decimated by typhus, to which the Russians, long subject to it, had acquired an immunity.

The sucess of the Spanish in their early American conquests hinged largely upon their infecting of the Indians with smallpox. Dubos also suggests that the British, fighting the Indians in North America, deliberately sent blankets to them contaminated by smallpox, thus wiping out countless villages. Dubos thinks this was the first instance in history of bacterial warfare.

It is a familiar fact in medical history that more soldiers died in our Civil War from typhoid fever than from wounds.

Dubos reminds us that Allied victory in World War II came when 100,000 Italians were stricken by an unidentified disease and the enemy thereby succumbed to the British.

The decline and fall of Rome was largely determined by the ravages of malaria; fluctuations in the subsequent development of Italian civilization before Mussolini may be ascribed to the same cause.

Dubos explains that the nutritional deficiencies which have retarted progress in Central Africa are because of the difficulty in raising cattle infected by the tsetse fly.

The influence upon literature by the plague in the fourteenth and fifteenth centuries is instanced by Boccaccio's Decameron.

Tuberculosis in the nineteenth century gave rise to a cult which made a fashionable ideal of a consumptive appearance; this seems to have had a good deal to do with the Pre-Raphaelite craze; it even gave rise to the use of face powder as a means of appearing anemic and ill. Much of all this derived from ideas associated with people like Poe's sickly wife and the six consumptive Brontë sisters.

Dubos points out that fictional characters today are afflicted with heart attacks, strokes, ulcers and neuroses—all symptoms of the industrial age.

An outbreak of fatal illness in the Kremlin may yet accomplish more than statesmanship or armies. It could happen.

The Nature of Political Leukemia

In a brilliant presidential address before the American Association for the Advancement of Science, Dr. Walter B. Cannon, famous Harvard physiologist, suggested that the automatic regulatory mechanisms of the body politic might

well find an ideal model in the physiologic functions of the human body.

This marvellous physiologic system of checks and balances, effecting stability and security in the normal body states, was called by Cannon, homeostasis. He thought that the "internal environment" of the political organism might well be patterned after the sugar, salt, pH, and adjustment to heat and cold mechanisms by which safety and steadiness were maintained. Such beneficent control Cannon thought of as political homeostasis.

This was an extraordinarily original concept in 1933, at the time the address was delivered. Today it holds a natural place in our thinking. But can we honestly say that homeostasis in Cannon's sense has taken any political root—that our statesmen have actually adopted the concept and consciously applied it?

The world could do worse than to adopt as guides the principles of Christianity (never applied) and of homeostasis.

Homeostasis would rationalize defense against aggression, for it is by phagocytosis that the body protects itself against bacterial invasion. In a homeostatic state, that would be the only function of international forces. The abuse of such forces in the world today, namely war, amounts to political leukemia.

The Narcotics Muddle

In our July issue we made some remarks on the narcotics dilemma which decried the legalization of addiction. We quoted the Federal Narcotics Commissioner to fortify our position and he has since then amplified his argument on the subject.

It will be recalled that Dr. Hubert S. Howe, a former Columbia University professor of neurology, made the suggestion recently on a television panel that state, federal or municipal governments sell narcotics to addicts at "fair prices" to end the narcotics black market.

A member of the television panel, police inspector Peter E. Terranova, head of New York City's narcotics squad, made the point that in a Near East country where the sale of opium to licensed adults was legal 60 per cent of the adult population was addicted.

Colonel Frank J. Smith, chief of the narcotics control section of the New York State Department of Health, was insistent that legalized sales at equitable prices would not smash the black market.

In a formal statement commenting on Dr. Howe's proposal the Federal Narcotics Commissioner made a counter proposal, saying that "If a plan like that advanced by Dr. Howe is given any serious consideration at all, then a state and federal building should be constructed, on the first floor of which should be a bar for alcoholics, on the second floor a narcotics dispensary for addicts and on the top floor a brothel for sex deviates."

We beg to supplement the Commissioner's counter proposal with a plea for a "sleeping pills" division on the second floor.

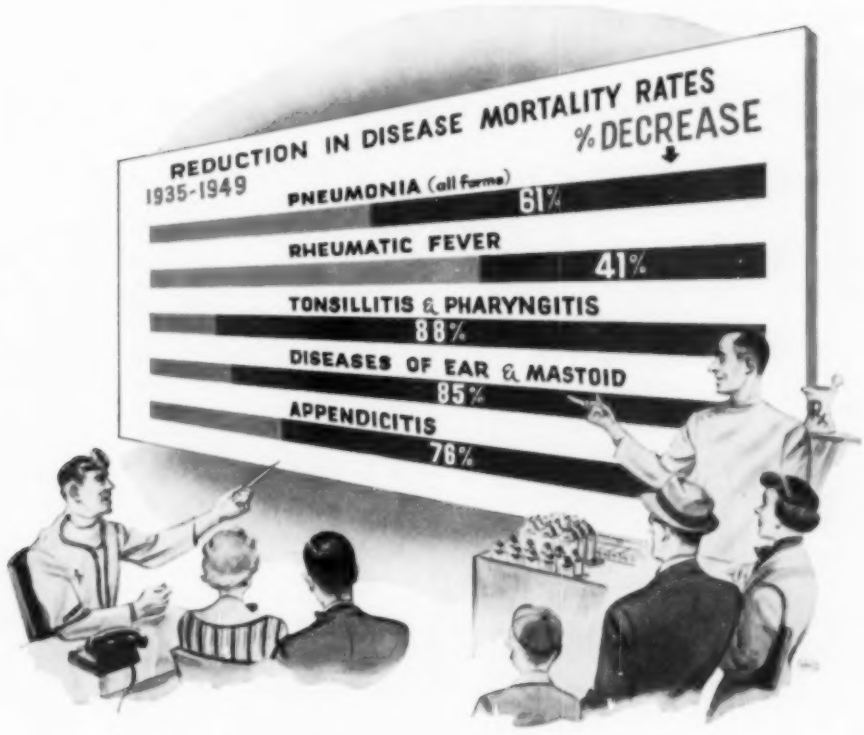
Physician-Pharmacist Relationship

One of the most serious public relations problems facing the medical and pharmaceutical professions is the public's misconception that medical and prescription costs are too high.

In an effort to solve this problem, the entire recent issue of American Pro-

THE *low* COST OF MEDICATION

Modern "miracle drugs" have lowered disease mortality rates—reduced the length and cost of hospitalization and convalescence—often for less than you would pay for a box of candy or a bottle of perfume.



All things considered, MODERN MEDICATION IS THE BIGGEST BARGAIN IN YOUR FAMILY BUDGET.

fessional Pharmacist, a leading drug trade publication, was devoted to a symposium on the "*low* cost of medication." The publishers are to be congratulated on this major contribution toward the solution of this public relations problem.

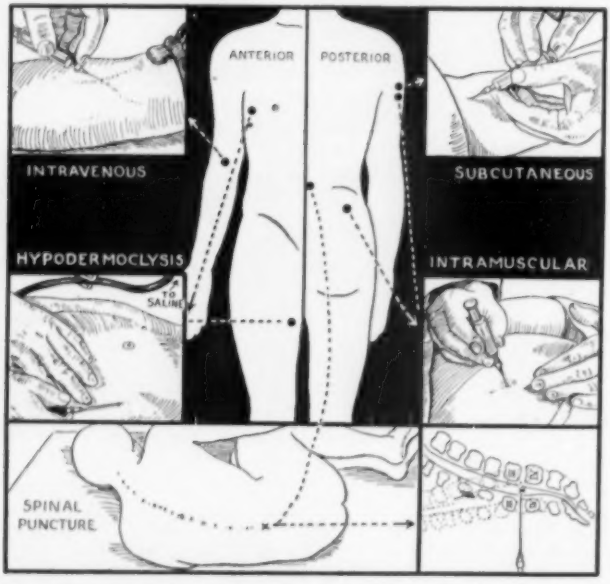
It is unfortunate that every layman cannot read this interesting issue. However, the physician can inform the public that present day prescriptions and drugs are low in cost, and have not risen in price comparable to the extent of the general increase in living costs.

When we remember that the close cooperation between physician, pharmaceutical manufacturers, and the pharmacist, has given mankind many years of longer life, and less costly medical care, the small price paid for today's "miracle drugs" becomes even more evident.

Incidentally, even these "miracle drugs" decrease in price as production increases and the initial investment is amortized.

Hospitals and physicians will be interested to know that for the nominal sum of $1.00, they can obtain a black and green dignified wall placard, 20 x 25 inches as illustrated. It comes provided with a metal strip and hanger for easy hanging. This poster will do an effective public relations job in hospital lobbies and physicians offices to emphasize to the public the *low* cost of medication. The address of the publishers is, 676 Northern Blvd., Great Neck, N. Y.

Clini-Clipping



Various types of injections and the anatomical areas best suited for them.

PUBLIC HEALTH, INDUSTRIAL MEDICINE AND SOCIAL HYGIENE

EARLE G. BROWN, M.D.*

Occupational Leukoderma

J. V. Klauder and J. M. Kimmich (*Industrial Medicine and Surgery*, 22: 106, March 1953) report cases of occupational leukoderma due to contact with rubber aprons and rubber gloves in the manufacture of which agerite alba (monobenzyl ether of hydroquinone) had been used as an antioxidant. Among 20 workers, all Negroes, wearing rubber aprons while cleaning floors and machines, 8 developed leukoderma. Depigmented areas appeared first on the forearms, about a month after the new aprons were first worn; these areas of depigmentation later developed into diffuse leukoderma involving the inner aspect of the forearms and arms; in some cases there was also an area of leukoderma across the neck below the chin, due to contact with the top of the apron. Of the 20 men wearing these aprons, 12 showed no leukoderma; although the period of contact with the aprons had not been quite as long in some of these 12 cases as in the cases of leukoderma, the fact that these men were not affected indicates that "personal susceptibility" is a factor in occupational leukoderma, as has been suggested by others reporting cases of this type. When new aprons were issued to these workers, in the manufacture of which agerite alba had not been employed, repigmentation of the skin began within a few months but was not complete in any of the 18 men affected at the end of twenty months. Two cases of depigmentation of the hands of Mexican workers wearing neoprene gloves are also reported; since one of these men had resided in an area where Pinta is endemic, the possibiliy of this disease was considered; however, cutaneous tests with pieces of the glove showed small areas of depigmentation at the contact site. "Spontaneous" loss of pigment (vitiligo) cannot always be distinguished from occupational leukoderma, except by careful study of the site, configuration of leukodermic areas, and the occupational history.

Brown

COMMENT

The literature contains many reports of products placed on the market which like the one reported above have proved with use to be toxic.

It is regrettable that manufacturers of new

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products, especially plastics, which come in contact with the skin of the consumer, do not avail themselves of the services of a competent laboratory where it may be determined whether these articles are capable of producing dermatitis. A patch test on a laboratory animal—or a human volunteer, would prevent much illness, discomfort, loss of man-hours of work and financial loss.

—E. G. B.

Current Status of Insecticide Resistance in Insects of Public Health Importance

A. D. Hess (*American Journal of Tropical Medicine and Hygiene*, 2:311, March 1953) presents a review of some recent developments in resistance to insecticides which have come to his attention in the past year. House flies have shown increasing resistance to DDT and similar insecticides, not only in the United States but in other countries, where DDT has been used extensively. Additional evidence has accumulated of resistance developing in anopheline mosquitoes and also in culicine mosquitoes to DDT. In the United States the resistance of the "salt-marsh mosquitoes" has been an "increasing problem" on the eastern coast. In addition to flies and mosquitoes, evidence of developing resistance to DDT has been reported from various parts of the world for roaches, bed bugs, body lice and fleas. Such insecticide resistance developing in various species of insects is of special significance in various public health "control programs." In malaria, for instance, if there is "a breakdown" in the control of malarial mosquitoes because of increasing resistance to insecticides, a serious situation might arise in some areas, if there has been a loss of acquired immunity of the population during a period of satisfactory control of the disease-transmitting mosquitoes. Further "fundamental research" in regard to this problem is necessary.

COMMENT

A study of resistance of larvae of salt marsh mosquitoes to DDT was made by R. F. Darsie, Jr., and Frank D. Cannon (Proc. New Jersey Mosquito Exterm. Assoc., 39:169-175; 1952). The resistance of larvae from a marsh on which DDT had been applied for four seasons was compared with that of larvae from a marsh on which no DDT had been applied. It was found that the mean mortalities to a spray at the rate of 0.2 pounds of DDT per acre, were 64 per cent for the former group of larvae and 98 per cent for the latter group. Wet soil samples from the marshes previously treated for four years showed an average of 0.55 pounds of DDT per acre, and the authors conclude that it is reasonable "to expect that the marshes under consideration will retain insecticide residue for a relatively long period, with continuing larvae resistance."

According to R. B. March, R. L. Metcalf and L. L. Lewallen (J. Econ. Entomol., 45:851-860; Oct. 1952), it is possible to effectively control DDT resistant flies if the exposure is two to six times as long as deposits of DDT with or without synergists (such as methoxychlor) as required for susceptible flies.

—E. G. B.

A Time-Saving Method for the Identification of Enteric Pathogens

R. A. MacCready and M. B. Holmes (*American Journal of Public Health*, 43:285, March 1953) describe a method for the identification of enteric pathogens isolated from feces, by which such identification can be made in two days or less. With this method colonies are fished from the primary plates into small tubes containing lactose-sucrose broths and incubated at 37° C for one to three hours. If acid fermentation is present in any of the tubes, the broth is streaked out on Endo plates. If no fermentation is present hanging drop preparations are used for motility and agglutination tests. Identification of Salmonella can be made on the same day, but if a Shigella organism is present, final readings must be done the next morning. Confirmatory carbohydrate

tests are then made; if microtechniques are used in these confirmatory tests, identification of the organism can be made on the same day that the colonies are taken from the primary plates, or at the latest by the following morning. This method is to be recommended only for laboratories where large numbers of enteric specimens are handled and the bacteriologists are especially experienced in work of this type. But in such laboratories, early diagnosis of Salmonella and Shigella infections is of aid not only to clinicians but also to public health officers who are investigating the epidemiology of "food-borne outbreaks."

COMMENT

One of the difficulties encountered by the epidemiologist in the investigation of outbreaks of gastroenteritis is the customary delay in the laboratory isolation and identification of the microörganism responsible for the cases. Prompt identification of the offending agent, Salmonella or Shigella, as described by the authors, will simplify the work of the investigator and aid considerably in the management of the cases.

—E. G. B.

Experience of the New Brunswick Department of Health in the Control and Treatment of Syphilis

A. F. Chaisson (*Canadian Journal of Public Health*, 44:90, March 1953) reviews the history of venereal disease control in New Brunswick; the Venereal Disease section of the Department of Health was formed in 1919; by 1939, 13 venereal disease clinics in addition to the "major clinic" at St. John's were operating, primarily to provide free treatment of venereal diseases for the indigent. In 1938-1939, also arsenicals and other drugs for the treatment of syphilis were provided free to physicians for all patients. But in 1948 to 1949, all the clinics except the major clinic in St. John were abolished, and the treatment of venereal disease was placed on a "fee-for-service" basis by the physician of choice. Free penicillin is provided for all cases, and physicians are allowed to make certain definite charges in addition for indigent patients. In 1949, shortly after the clinics were abolished, 35 per cent of all cases of syphilis reported were primary syphilis, and 50 per cent were primary and secondary syphilis; at the time of this report only 10 per cent of reported cases of syphilis are primary, and 20 per cent primary and secondary; latent cases represent 40 per cent of those reported at present and tertiary cases 20 per cent. The total number of cases of syphilis reported in the Province has decreased by about 50 per cent in the last three years. The shift in the type of cases reported indicates that there is an increase in cases in which diagnosis is more difficult; and further development of serological tests and methods of differentiation between true and false serologic reports, as an aid to the physician in the diagnosis of syphilis, are necessary. The author states that it is "difficult to say" how accurate the total of reported cases in the Province of New Brunswick is, but there has been a "dramatic decline" in the frequency of communicable syphilis, and it is necessary for the Health Department to meet this "changing trend" and "the changing needs of the medical profession."

COMMENT

The experience of the New Brunswick Department of Health in the control and treatment of syphilis has been duplicated in many areas in the United States where an active control program is in operation.

In Nassau County, New York, where this editor is commissioner of health, venereal diseases have dropped from their former position of the Number One public health problem to a

place of minor significance. With the exception of the World War II period in 1946 and 1947 with the return of military personnel, and at which time there was a significant increase in the number of early infectious cases of syphilis, there has been a constant downward trend in the number of cases as well as the case rate of the disease.

In 1939, with a population of approximately 400,000, there were reported 190 early syphilis cases (rate 47.6), 909 late cases (rate 227.8) and 36 congenital syphilis cases (rate 9.0). Contrasted with 1953, with more than a doubling of the population, only 9 early cases (rate 1.0), 292 late cases (rate 32.8) and 8 congenital cases (rate 9.0) were reported. As a result of this decline, it became expedient to abolish treatment clinics and refer indigent infected patients to physicians of their choice for treatment in their offices, penicillin being supplied and payment made by the department of health.

—E. G. B.

Antimony Poisoning in Industry

L. E. Renes (*A. M. A. Archives of Industrial Hygiene and Occupational Medicine*, 7:99, Feb. 1953) reports a study of 69 cases of occupational illness occurring in workers in an antimony smelter during a five months period. Dermatitis, upper respiratory tract irritations, pulmonary inflammation and systemic reactions were most frequently observed. In 6 men acutely ill from heavy exposure to the smelter fumes, chest x-rays showed pneumonitis extending "fanwise" from each hilus, but no lesions of the pulmonary parenchyma. Others, after heavy exposures developed symptoms of systemic toxic effects, diarrhea and abdominal cramps, vomiting, dizziness, nerve tenderness, headaches, and "prostration"; in 7 of 9 workers showing these symptoms, antimony was found in the urine. A study of smelter fumes showed that arsenic and caustic soda, as well as antimony, were present, but that antimony was "the predominating aerial contaminant." The symptoms observed in the 69 workers studied also resembled those of industrial antimony poisoning as reported by others; while none of the most characteristic early symptoms of arsenic poisoning were observed; and only one of the workers with symptoms of systemic toxic effects excreted arsenic in the urine, and only in small amounts. When the workers were withdrawn from exposure to the smelter fumes, recovery was rapid, as is the case with toxic symptoms resulting from therapeutic use of antimony compounds. On the basis of these findings the author concludes that antimony was "the causative agent of the illness observed" among the smelter workers.

COMMENT

Besides antimony smelters, the industries in which antimony is a hazard are: (1) the rubber industry in which golden and crimson antimony sulfides are used as pigments; (2) the printer's trade in which type metal containing lead plus antimony is handled; and, (3) the storage battery industry where antimony is used for grids as an alloy with lead.

The toxic action of antimony resembles closely that of arsenic on the human system. The literature concerning the toxicity of this metal has been comprehensively reviewed by L. T. Fairhall and F. Hyslop in U. S. Public Health Reports, Supplement 195 (1947) which may be obtained (for a nominal fee) from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

—E. G. B.

Epidemiologic and Serologic Appraisal of Murine Typhus in the United States, 1948-1951

G. E. Quimby and J. H. Schubert (*American Journal of Public Health*, 43:160, Feb. 1953) report a study of 450 cases in which the diagnosis of murine typhus had been made in eight Southern states in 1948 to 1951. Of these 450 cases, 351 had been reported as murine typhus and 99 had not been reported. In the 351 reported cases, sera had been obtained sufficiently long after onset of the disease for complement fixation tests in 230 cases; the

diagnosis of murine typhus was confirmed by the complement fixation test and the clinical findings in 133, or 58 per cent; while 57 cases, or 25 per cent, were "appraised" as not typhus; in 9 of these cases the diagnosis of Rocky Mountain spotted fever was established. Of the 99 unreported cases, complement fixation tests were made in 40, but the diagnosis of murine typhus was established on the basis of these tests and the clinical symptoms in only 13 cases; in 16 cases the diagnosis of typhus could not be established. Previous studies up to 1946 had indicated that murine typhus was "underreported" in areas where the disease was endemic. The findings reported in this study, as well as recent studies reported elsewhere, indicate that murine typhus is now overreported rather than underreported, especially in areas where the disease was once endemic, but now occurs only sporadically, as has been true also of dengue fever and malaria. Further studies are required to determine whether murine typhus may still be underreported in certain areas, although definitely overreported in others.

COMMENT

A similar problem regarding underreporting and overreporting exists in certain areas of Long Island in relation to Rocky Mountain spotted fever. In areas where the disease is endemic either cases are unrecognized, especially when a tick bite is unobserved and no serological test is made, or a case is reported merely on a history of exposure to ticks and an undetermined fever. Often a low titer Weil-Felix reaction in a febrile person is the only basis for diagnosis.

In the absence of laboratory confirmation—preferably complement fixation reaction, it may be difficult for the general practitioner to differentiate between the Rickettsial infections and measles, meningococcemia, typhoid fever or certain drug eruptions. —E. G. B.

OPHTHALMOLOGY

RALPH LLOYD, M.D., F.A.C.S.*

Observations on the Fundus Oculi During Black-out

T. D. Duane (*A. M. A. Archives of Ophthalmology*, 51:343, March 1954) reports a study of the fundus oculi during black-out by means of an experiment in which the subject was exposed to g forces (multiples of the gravitational attractive forces) similar to those to which aviators flying at high velocities are exposed and experience black-outs. In these experiments it was found there were three changes in the fundus oculi as shown by ophthalmoscopic examination during black-out and recovery; first, arteriolar pulsation; second, arteriolar exsanguination and collapse (at the time of black-out); third, return of arteriolar pulsation and temporary venous distention (during the period of recovery). In all these experiments a close correlation was found between the

Lloyd

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changes observed in the fundus oculi and the subjective visual loss; it was also noted that retinal anoxia occurs "within several seconds" after the appearance of retinal ischemia. Determination of the arterial pressure in a subject during blackout indicated a correlation between effective systolic pressure, the pressure in the ophthalmic artery with the symptoms and signs of blackout.

COMMENT

A valuable contribution to aviation medicine.
—R. I. L.

Pathological Study of Retinoblastoma Treated by Radon Seeds and Radium Disks

H. B. Stallard (*Bulletin of The New York Academy of Medicine*, 30:132, Feb. 1954) reports 36 cases of retinoblastoma (37 eyes involved) treated with radon seeds and radium disks; the radon seeds were first used; the radium disks have been used since 1948 in the treatment of 21 eyes. The radium disks employed are circular and made to fit the radius of the curvature of the sclera exactly. Of the 36 patients in this series, 28 have some useful vision, and 10 of them are living more than five years after treatment. Seven patients are blind, but are still living; in 2 the irradiated eye was not enucleated and shows no sign of recurrence; in 5 cases the irradiated eye has been enucleated; the conditions that made enucleation necessary were retinal detachment, complicated glaucoma, and vitreous hemorrhages; microscopic examination of serial sections of these eyes showed "no clear histological evidence of active retinoblastoma cells." Comparison of results is made with 5 cases reported by Foster Moore treated with radon seeds, and 25 cases reported by other surgeons, treated by various methods. In Moore's series, one patient died during convalescence, 2 have some useful vision, sufficient for their work, and 2 are blind. In the series of 25 cases reported by others, useful vision was obtained in 7 cases; 3 of these patients are living for more than five years; the best results were obtained with treatment with radon seeds. A study of these cases shows that if less than a third of the retina is involved in retinoblastoma, there is "reasonable hope" that the growth can be destroyed by adequate irradiation therapy. If half or more of the retina is involved, results are usually poor, as in most of these cases retinal detachment has occurred before treatment is attempted, or else it occurs soon after treatment. In such advanced cases, the author considers that the best treatment is excision of the eye with postoperative irradiation of the orbit. In those cases in which radiation therapy is indicated, the author has found the use of radium disks that fit the scleral curvature give the best results with least danger to the eye.

COMMENT

Only those who see small children or infants with retinoblastoma in both eyes can appreciate the value of these observations. One eye is usually much further advanced than the other and this can be removed and studied in the laboratory. Some hope can then be given the parents and enucleation of both eyes avoided.
—R. I. L.

Sulfonamides and Antibiotic Drugs in the Treatment of Trachoma

L. P. Agarwal and B. M. L. Gupta (*British Journal of Ophthalmology*, 38: 119, Feb. 1954) report a series of 250 cases of trachoma in the infiltrative or follicular stage and showing inclusion bodies in the cells. Fifty of these cases

served as controls, no treatment being used except eye drops of normal saline; 50 cases were treated with Terramycin by local application (eye drops and ointment) and by mouth; 50 cases were treated with chloramphenicol and 50 cases with Aureomycin, also by local application and by mouth; and 50 cases were treated with sulfonamides — sulfacetamide for local application and sulfacetamide or sulfatriad by mouth. Cases were followed up for six weeks, examination of tissue scrapings for inclusion bodies being made at three-weekly intervals. In the control cases, inclusion bodies were present in all at the end of the six weeks' period; also there was no improvement in subjective symptoms and pannus persisted. In all the cases treated with the antibiotics and with sulfonamides the subjective symptoms were relieved and secondary infection cleared up within forty-eight hours. Cure, as indicated by disappearance of pannus, and of the inclusion bodies was obtained in three to six weeks, in 12 cases treated with Terramycin, 16 cases treated with chloramphenicol, 20 cases treated with Aureomycin, and 35 cases treated with the sulfonamides. These results indicate that the sulfonamides are the most effective in the treatment of trachoma, and that Terramycin is the least effective of the antibiotics used in this series. It is probable that the sensitivity of the trachoma virus to the various drugs employed "is not uniform," or that more than one strain of trachoma virus may be involved. On the basis of their results the authors suggest that treatment of trachoma should be begun with sulfonamides, and in cases that do not respond to this therapy, one or another of the antibiotics should be tried. They also recommend a combination of local and oral therapy with the drug employed.

COMMENT

The sulfa drugs are very effective in treating trachoma. In this region only an occasional aggravation of a so-called healed case is seen and the drug is most effective either locally or internally or both. —R. I. L.

Management of Acute Ocular Lime Burns

W. Z. Rundles, Jr. and J. R. Quinn (*American Journal of Ophthalmology*, 37:209, Feb. 1954) describe a method of treating acute lime burns of the eye, not previously reported, which has been used successfully in 4 cases. The treatment consists in immediate irrigation of the eye with water, if the patient is seen at the time of the accident. Weak acids are not used for attempted neutralization of the alkali, as they may be harmful. Cortisone and a sulfonamide or antibiotic preparation are applied locally to the eye, at first every two hours when the patient is awake; later, this dosage is reduced. Atropine (1.0 per cent) is instilled three times a day and if pupillary dilatation is poor, 10 per cent aqueous neosynephrine can be used at the same time. The eye is covered with a pad, with vaseline or other lubricant applied to the under surface, and moist heat is applied for fifteen minutes three or four times daily until corneal staining with fluorescein has ceased. The use of local anesthetic preparations is avoided unless pain is very severe; codeine and salicylates are given to control pain and the barbiturates "to promote rest." With this method in the cases reported, the cornea was cleared more promptly than with other methods previously employed in lime burns of the eyes and vision was preserved. In experimental lime burns produced in the

eyes of rabbits, it was found that the local application of cortisone promoted more rapid clearing of the infiltration and opacification of the stroma than any other substance employed for this purpose. Since cortisone is not bacteriostatic, a sulfonamide or antibiotic preparation is used to prevent secondary infection.

COMMENT

The combination of cortisone and sulfa drugs is but recently available and the results are most satisfactory. The prognosis of lime burns depends not only upon early and efficient treatment but also upon the amount and depth of corneal damage.

—R. I. L.

Causes of Failure of Cataract Operations

D. B. Kirby (*American Journal of Ophthalmology*, 37:87, Jan. 1954), in a survey of results of "consecutive" cataract operations, including complicated cases, finds that the percentage of "total failure" (i.e., vision less than 6/60) is about 5 per cent in two-eyed patients with cataracts, and greater in the one-eyed group. In the adult and senile cataract cases, the author finds that disturbances in the vitreous are the most important cause of failure in the operation for cataract; next in importance are inflammation and changes in the cornea and uvea (although pyogenic infections are at present "rather rare"); other causes of failure are after-cataract or secondary membranes or adhesions (most common with extracapsular operations); glaucoma; "degenerative, hemorrhagic and proliferative conditions" in various structures of the eye and their blood vessels; and detachment of the retina. The intracapsular extraction of cataract, while more difficult, gives better results than extracapsular extraction and other older methods. At the present time, the availability of better sedative and anesthetic agents, antibiotics and hormones and better instruments should reduce the incidence of failures in cataract operations. In improving results of operation in addition to the use of the intracapsular operation, the following factors are noted as important: Improvement in the preparation of the patient so that the eye may be relaxed; prevention of inflammation and infection; recognition and prevention or treatment of glaucoma; prevention of hemorrhage and degenerative changes; general or total akinesia with local anesthetics; improved methods of postoperative care.

COMMENT

Modern cataract surgery is indeed most successful. The author says that intracapsular extraction is the best operation but is also more difficult. Many of the younger group feel that they are not up-to-date unless they use sutures and remove the lens in capsule. The beginner should use the operation which is easiest for him to do. Akinesia has been a great help in these operations, but only those who have operated in the day when only cocaine locally was available, can appreciate the advantage it confers.

—R. I. L.

Contact Lenses in Aphakia

E. F. Constantine and J. M. McLean (*A. M. A. Archives of Ophthalmology*, 51:212, Feb. 1954) report the use of contact lenses in 39 patients with aphakia; these patients all have obtained satisfactory vision, although 10 have discontinued the use of the lenses for various reasons. The use of heavy and unsightly spectacles is avoided with the use of contact lenses, and it has been found that many of the difficulties of vision in aphakic eyes can be corrected by the contact lenses, including visual field limitation and image distortion.

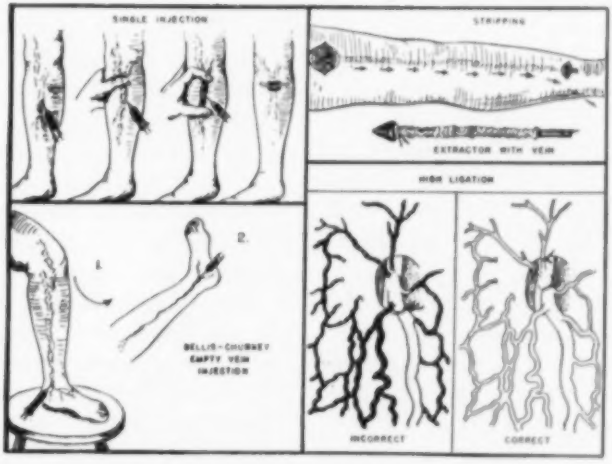
The use of the contact lens is of special value in persons who have one aphakic eye and normal vision or nearly normal vision in the other eye. In some cases satisfactory binocular vision is obtained as soon as the contact lens is fitted; others require "training and practice"; in some cases muscle imbalance is so great that prisms are necessary; one patient in the authors' series required muscle surgery before binocular vision was achieved. In some cases prisms may be prescribed temporarily to give vision, reducing the amount gradually. If there is a "significant" refractive error in the patient's normal eye, this can also be corrected with a contact lens. In a series of 37 patients with a visual acuity of 20/30 or better in the aphakic eye and in the normal eye, 27 are able to use the two eyes together with satisfactory results that meet "their individual standards of normal vision." On the basis of these findings, the authors suggest the wider use of contact lenses in patients with aphakia.

COMMENT

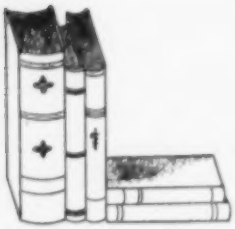
The contact lens is a wonderful thing in certain cases. Some patients can use them and some cannot. This detailed account of a series of trials in aphakia will cause others to use them and eventually the procedure will be standardized.

—R. I. L.

Clini-Clipping



Ligation and Injection treatment of Varicose Veins.



Medical Book News

Edited by Robert W. Hillman, M.D.

General Medicine

1953 Medical Progress. A Review of Medical Advances During 1952. Morris Fishbein, M.D., Editor. New York, Blakiston Co., [c. 1953]. 8vo. 301 pages. Cloth, $5.00.

We might call this a post graduate course in up to date medicine in 284 pages, each packed with a real punch that holds the reader from cover to cover.

One marvels at the patience, tenacity, observation, and ingenuity put forth by the various authors, the fantastic ideas that they have trailed down to discover highly valuable facts or workable theories. These will slowly frame the tools that will one day crack the enigma of what we are, where we came from, and how we tick. The article on nutrition alone can give one more fruitful thought, speculation and real comfort in this age of destructive energy than a whole shelf full of encyclopedias.

The "wonder drugs" are finally being brought into proper focus, with no fanfare of trumpets, but a real "Values and Accreditation Committee" has been formed, and we are getting a peek as to how they work, and their limitations, and dangers, for these are keen edged tools, and must be used with skill, caution, and care. The shot gun use of these is properly condemned, for we can kill the patient along with his disease.

Spectacular, but mutilating surgery, comes in for a sober review, and the patient should at least be advised as to what his chances and comfort may be *sans* bladder, rectum, oesophagus, kidneys, or voice, in the cure of his cancer. This is long overdue. Some of the end results of these *Clean Out* boys' jobs have been terrific, as we know from sad experience.

THOMAS F. NEVINS

Nutrition

Mayo Clinic Diet Manual. By the Committee on Dietetics of the Mayo Clinic. 2nd Edition. Philadelphia, W. B. Saunders Co., [c. 1954]. 8vo. 247 pages, illustrated. Paper, $5.50.

As indicated in the preface to the second edition, further editions will be necessary because of the continuing development of the science of nutrition and the increasingly important place that dietotherapy takes in our armamentarium, particularly in the treatment of the so-called degenerative diseases.

This book gives in table form a diet for almost every conceivable situation. Included in each table is the approxi-

mate composition, a sample menu, the weight, and most important, household measures. It is a very practical book and can be recommended to all hospitals, particularly those which have not developed their own diet manual.

PAUL I. KEARNEY

Nutrition

Nutritional Studies in Adolescent Girls and Their Relation to Tuberculosis. By Joseph A. Johnston, M.D. Springfield, Charles C. Thomas, [c. 1953]. 8vo. 320 pages, illustrated. Cloth, $7.50.

This book is a record of a 20 year nutritional study on adolescent girls, most of whom had tuberculosis. It attempts to show the disease process once developed, and what may be accomplished by promoting a normal nutritional state and replenishing previously acquired deficits.

Aside from its interest to workers in the field of tuberculosis, the book should be of value to the pediatrician, nutritionist, and student of growth. The following are some of the data the author has attempted to clarify:

1. There is a correlation between adequate nitrogen storage and healing of the infection. The problem posed by the adolescent tubercular patient is chiefly the need for supplying foods adequate for growth and for the healing process, and of an understanding of the mechanism of the diminishing ability to retain nitrogen in the post menarchal period.
2. The role of calcium storage bears some relation to the preservation of the primary lesion, but none to the healing of the infection. A broad consideration of all those things affecting growth at an age period when that process is particularly demanding, is essential for managing adolescent tuberculosis.
3. Diet of basal plus 70 per cent, with the calories derived from protein 15 per cent, carbohydrates 50 per cent, fat 35 per cent, was adequate to result in good storage. The calcium requirement was 1.3 to 1.5 grams plus 1000 units of Vitamin D. The hypo- and hyper-thyroid states were accompanied by diminished storage of nitrogen. Testosterone given to boys was anabolic for nitrogen.
4. When the temperature, pulse, and respirations are normal and when after rest the metabolism has fallen and retention of nitrogen and calcium has diminished, it seems logical to take advantage of the beneficial effect of activity on the retention of these substances.
5. In bone and joint tuberculosis immobilization is desirable.

In conclusion, this book gives a balanced data of the food requirements and the various factors which influence its utilization in the adolescent.

JOHN A. MONFORT

Virology

The Dynamics of Virus and Rickettsial Infections. Editors, Frank W. Hartman, M.D., Frank L. Horsfall, Jr., M.D. & John G. Kidd, M.D. New York, Blakiston Co., [c. 1954]. 8vo. 461 pages, illustrated. Cloth, $7.50.

From the standpoint of virology this is the most important book of the year, essential for anyone interested in infections in general and viral and rickettsial infections in particular. Every practitioner of medicine who wishes to keep abreast of the rapid advances being made in viral studies should read it.

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The medical profession owes a debt of gratitude to the program committee of the Henry Ford Hospital on bringing together these thirty-three investigators of world wide renown and from all over the globe to narrate their work in their special branches of this science.

Thirty-three edited presentations grouped under five headings together with the discussions following each symposium, thoroughly digest every subject that is worth discussion in the dynamics of virology and rickettsiology.

So great is the amount of information contained in the book that it defies review, but the book is very well written and edited and is extremely interesting. Discussions are lively and informative.

No one in the medical profession can afford to overlook this invaluable compilation of treatises and discussions.

KENNETH G. JENNINGS

Blood Groups—Demography

Le Sang Des Peuples. By A. Lahovary. Paris, Pacomhy, [1954]. 8vo. 286 pages, illustrated.

In this lengthy monograph, Lahovary introduces and applies his so-called Index of Difference for comparing the distributions of the various blood groups in different populations throughout the world. For example, comparing two populations with the distributions O 27, A 53, B 13, AB 7; and O 45, A 40, B 10, and AB 5, respectively; the author takes the absolute values of the differences between the frequencies of the corresponding blood groups and sums them, 18 + 13 + 3 + 2, to obtain 36 as the Index of Difference between these two populations. He recommends the use of similar indices for the three M-N types, and also for the Rh-Hr types, and also recommends that by summing these indices one can obtain a single index which takes all three systems into account.

The fallacy of Lahovary's index is that it gives no information regarding the distribution of the blood groups in the populations being compared. For example, in the case of the M-N types from the value for the frequency of gene *M* alone it is possible to recalculate the distribution of the three M-N types in a population, while Lahovary's Index of Difference leaves one completely in the dark. In addition, two populations with quite different blood group distributions may have the same Index of Difference with respect to a third population used as a standard of reference. Moreover, if one were to use these indices to compare, for example, 100 different populations, one would have to juggle as many as 4950 Indices of Differences, so that it would be far simpler and more informative merely to list the 100 different blood group distributions. The attraction of the so-called Index of Difference is that anyone who can do simple addition and subtraction can calculate it. The use of the Index of Difference gives the book an esoteric appearance, whereas actually no understanding of blood groups, serology, or genetics is required for the calculation. Since the author makes numerous misstatements about the most elementary facts in blood grouping, such as his statement that corresponding to the three M-N types, M, N, and

MN, there are only two genotypes, MM and NN, it is evident that he has no real understanding of the subject. This book, therefore, cannot be recommended.

A. S. WIENER

Pathologic Physiology

Grundzüge Der Pathologischen Physiologie. By Prof. Helmut Vogt. Munich, Urban & Schwarzenberg. [c. 1953]. 8vo. 582 pages, illustrated. Cloth, DM 45.60.

Recent progress in all branches of sciences has very much amplified our understanding of the functions of our body in days of health as well as of sickness. This book tries to give a survey of the progress in pathological physiology and can be considered as a successful representation. The numerous and excellent illustrations are helpful for the reader, and so are the tabulae in the text. The newest scientific research results, including those reported in the American literature, are well considered, for instance, vectocardiography and the Smithwick operation. The chapters are grouped similarly to those in textbooks of clinical medicine, according to the organs and systems of the body. Description is always to the point and can easily be understood, including that of such newly coined terms as "Durchspritzgeraüsch" in the case of ileus.

The book can be highly recommended to students and to those physicians who want to find competent but short information on the newest events in this line. Paper, print and illustrations are excellent.

MAX G. BERLINER

IMMUNOLOGY

Immunity, Hypersensitivity, Serology. By Sidney Raffel, M.D. New York, Appleton-Century-Crofts, [c. 1953]. 8vo. 531 pages, illustrated. Cloth, $8.00.

This textbook on immunology is written primarily for the advanced student. The subject matter is covered in great detail with numerous very useful references to the original literature. The greater emphasis is placed upon recent work; this succeeds in bringing the reader up to date on current topics, but it sometimes leaves him without a proper background for understanding the subject under discussion. For example, the historically important side chain theory of Ehrlich is not mentioned, nor is the older very extensive work on anthrax.

In discussing controversial topics, the author tends to give adequate explanations only for those views that he himself accepts. Thus he explains the "lattice" theory for the aggregation of antigen by antibody very fully; the opposing "non-specific aggregation" theory receives scanty treatment and the reader is led to believe that it has no merit whatsoever. Nowhere does the author explain the mechanisms of aggregation without antibody, as (for example) in the case of "rough" bacteria.

Nevertheless, this is a most useful and stimulating book. It is clearly written; many concepts are made graphic by excellent diagrams and schematic summaries. In the treatment of those topics in which the author is especially interested (such as hypersensitivity and resistance in tuberculosis), this work is very stimulating indeed.

ARNOLD H. EGGERTH

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MEDICAL BOOK NEWS

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BOOKS RECEIVED FOR REVIEW

Eat, Think and Be Slender. By Leonid Kotkin, M.D. with the assistance of Fred Kerner. New York, Hawthorn Books, [c. 1954, The Author]. 8vo. 223 pages. Cloth, $2.95.

Handbook of Cardiology for Nurses. By Walter Modell, M.D. & Doris R. Schwartz, R.N. 2nd Edition. New York, Springer Publishing Co., [c. 1954]. 8vo. 320 pages, illustrated. Cloth, $4.25.

Song of Life with Variations. By H. Ameroy Hartwell, M.D. Boston, Bruce Humphries, [c. 1953]. 8vo. 371 pages, illustrated. Cloth, $5.00.

The Science Book of Wonder Drugs. By Donald G. Cooley. Illustrated by William Draut. New York, Franklin Watts, [c. 1954]. 12mo. 247 pages, illustrated. Cloth, $2.95.

Toxicity of Industrial Organic Solvents. Revised in consultation with the Toxicology Committee. By Ethel Browning, M.D. New York, Chemical Publishing Co., [1953]. 8vo. 411 pages. Cloth, $8.00.

Laboratory Instruments. Their Design and Application. By A. Elliott, D.Sc. & J. Home Dickson, M.Sc. New York, Chemical Publishing Co., [1953]. 8vo. 414 pages, illustrated. Cloth, $7.50.

Fundamentals of Otolaryngology. A Textbook of Ear, Nose and Throat Diseases. By Lawrence R. Boies, M.D. 2nd Edition. Philadelphia, W. B. Saunders Co., [c. 1954]. 8vo. 487 pages, illustrated. Cloth, $7.00.

A Manual of Tropical Medicine. By Col. Thomas T. Mackie, M.D., A.U.S. (Ret.), Col. George W. Hunter, III, M.S.C., U.S.A. & C. Brooke Worth, M.D. 2nd Edition. Philadelphia, W. B. Saunders Co., [c. 1954]. 8vo. 907 pages, illustrated. Cloth, $12.00.

Investing For The Successful Physician

Prepared especially for Medical Times by Merrill Lynch, Pierce, Fenner & Beane, Underwriters and Distributors of Investment Securities, Brokers in Securities and Commodities.

CURRENT BUSINESS APPRAISAL

The background to any investment decision must be the current state of the nation's over-all business as well as its future prospects so far as can be estimated.

Even though you're naturally most interested in the companies in which you own stock, few companies are completely independent of general business conditions. All are affected to some degree by such things as over-all employment, government spending policies, or changes in the income tax laws.

The following then, represents an appraisal of business. It involves a series of opinions, each the result of a number of facts. This discussion should serve as a guide to you as an investor—help you to make your own appraisal and form your own fact-backed opinion. It is downright dangerous to translate a guess into the purchase or sale of stock. It is smart investment practice to form an opinion and keep it up to date with all the facts you can lay your hands on. An opinion on the economy for the coming six months, a year, two years; an opinion on the industries and companies in which you have an owner's interest—opinions based on facts—this is the continuing job of the successful investor.

Investment Outlook—In the past three months, while the business decline has come to a halt, common stock prices have advanced materially. In spite of this fact, many common stocks do not appear to be overvalued in relation to earnings and dividend prospects for the remainder of this year.

Within the stock market many cross currents are in evidence. Representatives

of certain depressed industries such as the independent auto makers, coal, railroad equipment, and sugar, have failed to participate in the market rise. Merchandising and airline stocks have been backward but there is reason to expect better times ahead for these two groups.

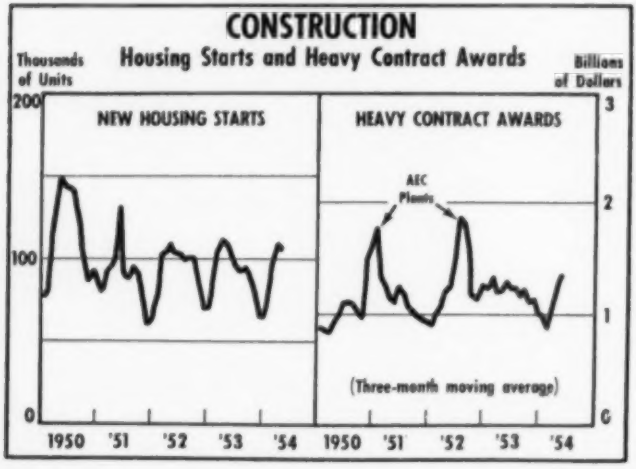
So far the parade to higher prices has been led by the top quality "name" stocks. This is in part the result of steady accumulation by institutional and investment type funds which are habitually concentrated in a rather small but select list of the best "blue chip" issues.

Although the attraction of top "blue chip" stocks cannot be denied for the long pull, there have been a few signs recently of a gradual broadening of investor interest to embrace a somewhat larger group of good quality, dividend-paying stocks—the so-called "red chips." There are many examples of "red chips" in the food, merchandising, railroad, steel, and electronics fields which appear to offer good value at current prices.

Up to the present the general complaint of most stockholders has been that there may have been a bull market in the "averages" but that their stocks have not risen. Indications are that this situation too may be changing. Even a previously dormant group like the speculative airlines may carry less price risk at the moment than some high grade stocks which have "climbed a cliff."

The stock market is more often than not strong in the summer months in anticipation of the normal fall pick-up in business. Even so the market has been rising for almost a year without serious interruption so that the possibility of a near term set-back cannot be ruled out.

Business Outlook—Is there any blueprint for the future of our nation's business? Let's look it over. First, the new housing and tax laws should be stimulating to the economy. A huge road-building program presented by President Eisenhower to the Governor's Conference offers a further hint of things to come. Disposable income—what we have left to spend after taxes—has been steady employment. A tax reduction plus moderate wage increases in a number of in-



Housing starts are running at the 1953 rate; heavy contract awards after a slow start are now above comparable 1953 levels. (Data: B.L.S., Engineering News Record.)

creases in a number of industries has helped to hold this spendable income at a high level. This has been highly important as a basic prop to sales. The public continues to spend as the standard of living rises. This is a reflection of confidence in the future. A rising birth rate has thrown most of the population estimates into the wastebasket.

Stiff competition appears to be building. One indication of this has been the recent mergers in auto, chemical and textile industries. Cutting costs means economy in selecting plant locations, weeding out sales organizations, watching expenditures in research and product improvement.

Stock markets are strong all over Europe, the result of the remarkable economic revival throughout western Europe, especially Germany, and in

MARKET PROSPECTS

Relatively Favorable—

AIRLINES
BUILDING SUPPLIES—Cement
FOOD—Soap, Vegetable Oil
MERCHANDISING—Food Chains, Department Stores
MISCELLANEOUS—Containers—Metal
RADIO & TELEVISION
RAILROADS—Agr. & Indl. Roads—Western, Agr. & Indl. Roads—Indl. Roads Eastern

Average—

AGRICULTURAL MACHINERY
AIRCRAFT MANUFACTURERS
AUTOMOBILES—Ind. Passenger Car Producers
Major Passenger Car Producers
Trucks
AUTOMOBILE ACCESSORIES
BANKS
BEVERAGES AND CONFECTIONERY—
Chewing Gum
Soft Drinks
BUILDING SUPPLIES—
Air Conditioning
Plumbing and Heating
Roofing and Wallboard
CHEMICAL—
Basic Chemicals
Sulphur Producers
Fertilizer
Paint
DRUGS—Ethical, Proprietary
FOOD
Biscuits, Bread Baking, Corn Refining
Dairy
Milling, Packaged Foods
Canning, Meat Packing
HOUSEHOLD EQUIPMENT—
Carpets
Hard Floor Coverings
Stoves
INSURANCE & FINANCE—
Auto
Finance
MACHINERY—
Construction Machinery
Heavy Machinery
Oil Field Equipment
MERCHANDISING—
Apparel Chains
Mail Order Chains
Drug Chains
Variety Chains
METALS—
Aluminum
Copper, Gold
Lead & Zinc
Metal Fabricating
MOTION PICTURES & AMUSEMENTS—
Production and Integrated Cos.
Theatre Cos.
NATURAL GAS
Integrated Pipe Line Cos.
Producers
Gas Distributors
PAPER & PULP—Container Cos.
Diversified Producers; Paper Makers
PETROLEUM
PUBLIC UTILITY HOLDING COS.—
Companies Close to Liquidation
Integrated Companies
PUBLIC UTILITY OPERATING COS.—
Electric
Telephone
RAILROADS—
Land Railroads (Oil & Metals)
Southern
Coal Roads
RAILROAD EQUIPMENT—Tank Car Co.
RUBBER
STEEL
SUGAR—Beet Sugar Processors
TEXTILES
TOBACCO—
Cigarettes; Snuff
Cigars
MISCELLANEOUS—
Containers—Glass
Office Equipment

Relatively Unfavorable—

BEVERAGES AND CONFECTIONERY—Liquor, Beer, Candy
CHEMICAL—Rayon
ELECTRICAL EQUIPMENT
INSURANCE & FINANCE—
Fire-Casualty
Small Loans
MACHINERY—Machine Tools
RAILROAD EQUIPMENT—
Car Builders
Locomotive Makers
Parts & Equipment Cos.
SUGAR—
Cuban Cane Producers
Puerto Rican Cane Producers

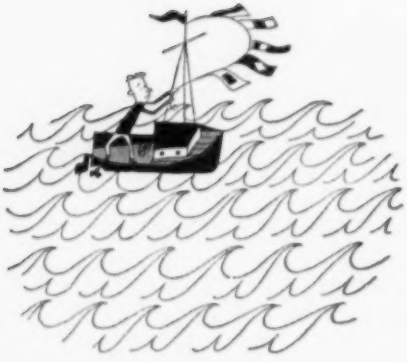
England. This strength does not show a picture of war. But no matter what comes—with Korea and Indo China in mind, it is hardly to be expected that our defense industries will be allowed to deteriorate. The only position from which to negotiate with communism appears to be one of strength—both militarily and economically.

There seems to be a growing evidence of wider public buying of common stocks. So far this has been an extremely healthy movement since the public has been moderately optimistic —without running away wildly with the stock market in a speculative surge. One notable exception: the unbridled speculation in uranium stocks somewhat reminiscent of the boom in Canadian oil promotions of a few years ago.

The Case for Optimism—The expected rise in unemployment during the summer has thus far failed to materialize. June graduates are being absorbed into the labor force with less difficulty than was expected and business confidence is growing.

At present hopes are high. Most forecasts, from both private and government economists as well as from business sources, are optimistic. Attesting to improved sentiment is the surprising fact that new business incorporations in the first five months of 1954's so-called recession were 5.7% above the number formed in the same period of last year's record-boom.

Other sensitive indicators of business trends bear out the more optimistic outlook. Commodity prices are firmer and appear stabilized at slightly better levels than last year's lows. Stock prices have had brief setbacks but the trend remains upward even after 11 months of rise. The work week moved from 39 hours



in April to 39.6 in June. Business inventories in April were reduced at a better rate than the first quarter reductions while sales showed some improvement.

The most favorable of all the barometers of business has been the trend in the construction industry. Both residential and commercial contract awards are higher than in 1953 by a slight margin. The favorable implications of these awards extend far beyond the construction field of course. Rising construction stimulates sales of materials, furniture, fixtures, utilities, service industries, and so forth.

Much of the present record building activity is associated with trends toward suburban living; the transformation of population from the city to a broader residential area outside urban limits is likely to modify and increase the markets for many other industries. They range all the way from textiles (work, play and casual clothes) to appliances of all kinds and even automobiles. The 30-year veteran's mortgage is already beginning to add further stimulus to housing starts and should continue to do so through the middle of 1957 when current provisions expire.

The uncertainty of automobile production (with early model changeovers) and the scheduled declines in defense and capital equipment spending may modify the widely anticipated improvement in the last quarter of this year. Defense spending plans may of course be in for a "new look" revision upward. In any event, defense spending continues to be a powerful prop to business stability and the longer term needs of the economy, particularly in construction, are far from being satisfied.

How Carnation protects the baby's formula from farm to bottle

Guards Your Recommendation Five Important Ways

1. Carnation store stocks are date coded, inspected by Carnation salesmen to assure freshness, high quality.

2. Dairy cattle from Carnation Farms are shipped to supplier herds to improve the Carnation milk supply.

3. Carnation supplier herds and equipment are inspected regularly by Carnation Field Service Men.

4. Continuing research in the Carnation Laboratories guards the purity and nutritive values of Carnation Milk – develops improved processing methods.

5. Carnation Milk is processed solely by Carnation in Carnation's own plants, to Carnation's high standards.

The milk every doctor knows!

A NEW IDEA!

More and more physicians are suggesting the use of reconstituted Carnation Milk during the transition from bottle to cup, to avoid digestive upsets and encourage baby's ready acceptance of milk from the cup.

VIFORT®
drops

for maximum polyvitamin absorption...

Endo®

VIFORT is an aqueous polyvitamin containing synthetic vitamins A and D in small particle size plus five B vitamins; vitamin C; and vitamin E. No fishy taste or odor.

15-, 30-, 60-cc. dropper bottles. Also supplied as capsules.

Samples? **Just write to**

ENDO PRODUCTS INC., Richmond Hill 18, N.Y.

CONVERTIN supports digestive function by selective release of:

hydrochloric acid in the stomach, and desoxycholic acid and pancreatin in the small intestine.

Experience shows that the supplementation of gastric and pancreatic digestants is normally beneficial among the elderly.[1-3]

CONVERTIN®

digestant tablets

permit a more varied diet . . . better nutrition . . . by partial replacement of digestants diminished with age.

Each CONVERTIN Tablet is actually two tablets in one:

A sugar-coated outer layer designed to release in the stomach:

Betaine HCl . . . 130.0 mg. *(Provides 5 minims Diluted Hydrochloric Acid U.S.P.)* **and**
Oleoresin Ginger . . . 1/600 gr.

Surrounding an enteric-coated core designed to release in the small intestine:

Pancreatin . . . 62.5 mg. *(Equiv. to 250 mg. U.S.P.)* **and**
Desoxycholic Acid . . . 50.0 mg.

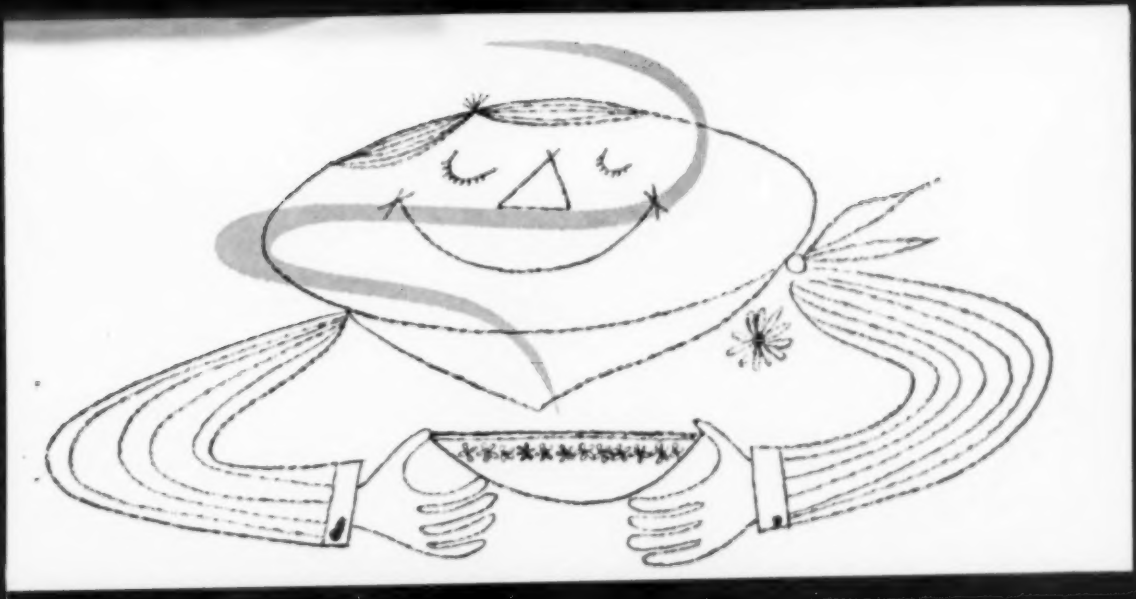
DOSAGE: Two tablets with or just after meals. Dose may be reduced, usually after first week, at the discretion of the physician.

SUPPLIED: In bottles of 84 and 500 tablets.

Available on prescription only

B.F. ASCHER & COMPANY, INC.
Ethical Medicinals
KANSAS CITY, MO.

References: 1. Lee, R. I.: Chicago M. Soc. Bull.: 48:503, 1946. 2. Golob, M.: Am. J. Digest. Dis. 18:308, 1951. 3. McLester, J. S., and Darby, W. J.: Nutrition and Diet in Health and Disease, ed. 6, Philadelphia, W. B. Saunders Company, 1952, pp. 416, 476.



salt-free needn't mean flavor-free

DIASAL is enthusiastically endorsed by low-salt dieters for the zest and flavor it gives to pallid, sodium-restricted meals. So closely does it match the appearance, texture and taste of table salt that patient adherence to your diet instructions is virtually assured.

DIASAL contains only potassium chloride, glutamic acid and inert ingredients... no sodium, lithium, or ammonium. It may be used safely for extended periods, both at the table and in cooking. Because of its potassium, DIASAL may be a valuable prophylactic against potassium depletion.

DIASAL®

packaging: available in 2-ounce shakers and 8-ounce bottles.
Send for liberal supplies of tasting samples and low-sodium diet sheets for your patients.

FOUGERA

E. FOUGERA & COMPANY, INC.
75 Varick Street, New York 13, N. Y.

Protection of the clinically cured patient from re-infection with TRICHOMONAS VAGINALIS

Because of the general recognition of the male as a possible vector,[1-4] the post-treatment use of a condom during coitus is a valuable safeguard of success in the management of Trichomonas vaginitis.

The regular use of a condom by the husband of the clinically cured woman for a period of three months or more reduces the chance of recurrence of symptoms.[2] A condom also protects the male partner against possible infection from a quiescent residual focus in the woman.

The asymptomatic infection in the husband is often the basis for stubborn infection in the wife. The detection of Trichomonas vaginalis infection in the husband is a frequent by-product of the search for the source of recurrences in the woman.[3] After clinical cure of both sexual partners, the regular use of a condom during coitus for three months or longer effectively breaks the cycle of infection and re-infection.

Among admittedly promiscuous men, Trichomonas vaginalis infection often accompanies specific or nonspecific urethritis, and sometimes urethral stricture.[1,2] The usual mildness and self-limiting nature of the infection in the male makes its eradication much easier than in the female.[4] After apparent cure, the use of a condom during intercourse for 30 days prevents possible infection of the female sexual partner.

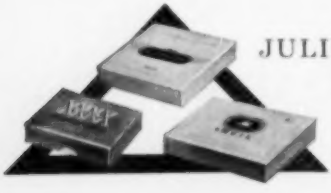
The need for the protection of a condom during coitus should be impressed upon the woman patient. The greater distress and greater severity of symptoms among women, as well as their passive role during coitus combine to enforce adherence to the use of a condom by the male sexual partner.

Occasionally patients will manifest a reluctance to use the condom because of inconvenience or dulling of sensation. These objections are readily overcome following the recommendation and initial trial of pre-moistened, convenient FOUREX® skins. As these are prepared from the cecum of sheep, they do not exert any retarding effect on sensory nerve endings. In those cases where cost is a paramount factor, the use of RAMSES,® a transparent, very thin rubber condom, or SHEIK,® a popular-priced brand, will prove eminently satisfactory.

Physicians may now obtain a complimentary package of FOUREX pre-moistened skins and RAMSES and SHEIK rubber condoms to enable them to confirm their value among patients as adjuncts to the successful treatment of Trichomonas vaginitis. In order to limit distribution to physicians only, kindly request this complimentary package on your prescription blank and mail to: Dept. M3, Julius Schmid, Inc., 423 West 55th Street, New York 19, N. Y.

references:

1. Lancely, F.: Brit. J. Ven. Dis. 29:213-217, Dec., 1953; abstracted J.A.M.A. 154:1467, Apr. 24, 1954. 2. Bernstine, J. B., and Rakoff, A. E.: Vaginal Infections, Infestations, and Discharges, New York, The Blakiston Company, Inc., 1953, pp. 256-259. 3. Kanter, A. E.: The Recognition and Treatment of Vaginal Lesions, Postgrad. Med. 12:457, Nov., 1952. 4. Meigs, J. V., and Sturgis, S. H.: Progress in Gynecology, vol. 2, New York, Grune and Stratton, Inc., 1950, p. 433.



JULIUS SCHMID, INC. *Prophylactics Division*
423 West 55th Street, New York 19, N.Y.

NEW. . .VASOCORT*

A safe, effective hydrocortisone

preparation to reduce inflammation and edema in the nose

Contains: Hydrocortisone (compound F)—the most effective anti-inflammatory agent—and two vasoconstrictors.

Indications: *Acute, chronic* and *allergic rhinitis* (*including hay fever*).

Low hydrocortisone concentration: When applied topically, maximum therapeutic response is achieved with an extremely low concentration of hydrocortisone. Because of its extremely low hydrocortisone concentration (0.02%), 'Vasocort' produces none of the untoward effects associated with systemic hydrocortisone.

Two superior decongestants: Phenylephrine hydrochloride—the most widely prescribed vasoconstrictor—for rapid onset of shrinkage, and Paredrine† Hydrobromide for prolonged shrinkage.

Virtually no rebound turgescence: Because 'Vasocort' contains low concentrations of each vasoconstrictor, it almost never produces rebound turgescence.

Low cost: Despite the fact that 'Vasocort' contains hydrocortisone, it costs your patient no more than other multi-ingredient intranasal preparations.

Available in two forms:

'VASOCORT' SOLUTION and 'VASOCORT' SPRAYPAK*

Smith, Kline & French Laboratories, Philadelphia

★Trademark

†T.M. Reg. U.S. Pat. Off. for hydroxyamphetamine hydrobromide, S.K.F.

Patent 2181845
Other patents applied for

MODERN THERAPEUTICS

Mortality Reduced 50% in Myocardial Shock

The mortality rate for acute myocardial shock, which was roughly 75 to 90 per cent a few years ago, has been reduced by almost 50 per cent through the use of vasoconstrictor drugs, especially Levophed, according to Drs. Robert W. Oblath and George C. Griffith of the University of Southern California School of Medicine.

Writing in the *J. A. M. A.* [*155*:804, (June 19, 1954)], they state that pressor agents are the most effective agents today in combatting critical hypotension. Studies have repeatedly demonstrated that "use of Levophed by continuous intravenous drip is associated with a well-maintained pressor response in at least half the patients thus treated." In cases of shock accompanying heart block, the doctors add, Isuprel "is of particular importance because of its effects on heart rate and blood pressure." Both Levophed and Isuprel are manufactured by Winthrop-Stearns Inc.

In another report on myocardial shock in the same issue of the publication, Dr. Bernard L. Brofman of Mt. Sinai Hospital, Cleveland, affirms the effectiveness of pressor therapy. In many cases, he says "the increase in peripheral resistance produced by pressor drugs is followed by dramatic improvement and recovery from the shock state.

"Since shock occurs in approximately ten per cent of all cases of myocardial infarction and carries with it a very high mortality, if untreated, it is felt that vigorous early therapy with pressor amines is the treatment of choice," according to Dr. Brofman.

Antibiotic Combination Clears Up Stubborn Skin Diseases

An ointment combining two antibiotic drugs has been called "safe and effective" by a Boston physician after he had studied the drug in more than 200 cases of skin infections.

Dr. Bernard Appel of the Tufts College of Medical School used Terramycin and polymyxin to eliminate impetigo, eczema, acne and other pus-forming skin infections without encountering "one case of irritation or sensitization."

The physician was particularly im-

—Continued on page 100a

Diagnosis, Please!

ANSWER

(from page 25a)

URINARY BLADDER CARCINOMA

Note the large, irregular filling defect in the bladder extending well towards the patient's left and producing obstructions at the entrance of the left ureter into the bladder.

FULL HEMATINIC PROTECTION

for
patients in the
MIDDLE AGES
(and others)

in
common anemias
and nutritional
deficiencies

FULL formulas
FULL dosage
FULL response

In patients in the "middle ages" and in pregnant and elderly patients as well, anemia and suboptimal nutrition are often concurrent. Lay siege to the syndrome with ferrous *gluconate* PLUS many needed elements. Spies states, ". . . the newer vitamins . . . play a most important role in blood building."[1] It "is rare to meet with a deficiency of one factor without depletion of others."[2] A combination of antianemic factors and nutritive elements produces a better hematologic and clinical response than iron alone.[3]

prescribe:

FERGON PLUS CAPSULES (ferrous *gluconate*, B_{12}, folic acid, liver, gastric mucosa, vitamin C)

FERGON COMPOUND ELIXIR (ferrous *gluconate*, B_{12}, folic acid and 5 additional B vitamins)

better tolerated: Ferrous gluconate (iron without irritation) is "less irritating to the stomach [than ferrous sulfate]."[4]

needed together: ". . . both folic acid and vitamin B_{12} are required for normal hemopoiesis . . ."[5]

desirable: ". . . the existence in liver of . . . other factors than folic acid and vitamin B_{12} makes desirable the inclusion of liver fraction . . ."[2]

aids full blood formation: "Ascorbic acid apparently plays a role in hemopoiesis . . ."[6]

important: The B complex vitamins are "important in erythropoiesis."[6]

indications: FERGON PLUS Capsules and FERGON COMPOUND Elixir are indicated in all anemias amenable to iron, oral vitamin B_{12} and folic acid, except true Addisonian anemia.

therapeutic: (1) Common iron-deficiency anemias. (2) Megaloblastic anemias of pregnancy, infancy and tapeworm, nutritional macrocytic anemia and anemias of total gastrectomy, intestinal stricture and steatorrhea. (3) Nutritional deficiencies.

prophylactic: (1) Pregnancy and lactation. (2) Convalescence. (3) Geriatric therapy. (4) Preoperatively, postoperatively, and in long illness. (5) As a nutritive supplement.

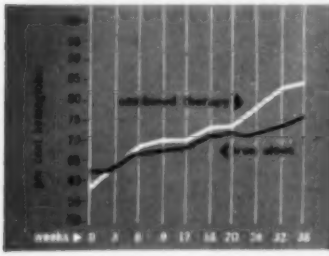
dosage:

FERGON PLUS CAPSULES: Adults: *prophylactic*, 1 capsule daily; *therapeutic*, 2 or 3 capsules 3 times daily.

FERGON COMPOUND ELIXIR: Adults: *prophylactic*, 1 teaspoonful daily; *as hematinic:* 1 or 2 teaspoonfuls 3 times daily with water.

HIGHER LEVELS AND A MORE RAPID RISE ON COMBINED THERAPY

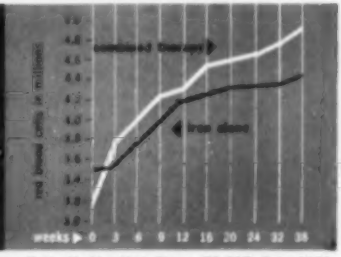
Hemoglobin rises more rapidly and attains higher levels on combined antianemic therapy



◀ **23 weeks sooner.** In 9 weeks, the increase in *hemoglobin* on combined therapy* equals the result in 32 weeks with iron alone.[3]

32 weeks sooner. In 6 weeks ▶ the increase in *red blood cells* on combined therapy equals the result in 38 weeks with iron alone.[3]

Erythrocyte increase is more rapid and attains higher levels on combined antianemic therapy



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FERGON® PLUS *Capsules*

FERGON COMPOUND *Elixir*

WINTHROP *Winthrop-Stearns* INC., New York 18, N.Y. Windsor, Ont.

*Iron, B complex, ascorbic acid and liver fraction.

FERGON, trademark reg. U. S. Pat. Off., brand of ferrous gluconate

MODERN THERAPEUTICS

—Continued from page 96a

pressed with the speed with which the two-pronged antibiotic attack helped victims of stubborn dermatoses. A four-and-one-half month-old boy who had suffered from an infectious eczema for four months was "cleared up completely and stayed clear after using Terramycin and polymyxin B for one week. One six-year-old boy, who had an almost continuous succession of attacks of infectious eczematoid dermatitis of the ears and nostrils for three years, cleared with this treatment in one week and remained clear."

Impetigo, external ear infections, acne of the scalp, and barber's itch all responded dramatically to a few days treatment with the Terramycin-polymyxin ointment, Dr. Appel states in a report summarized in *Am. Pract. Digest of Treat.* [1258(1954)].

The Boston physician notes that between them Terramycin and polymixin effectively attack almost all the germs which are commonly responsible for skin infections. He could not tell, however, whether the two antibiotics exert an additive effect (synergism) and are thus better together than would be expected.

Enema for Cardiacs Presents Problem

"Is there any danger in administration of an enema to a patient with

—Continued on page 104a

specific

NOT "SHOTGUN" THERAPY

in diaper dermatoses

Diaparene® CHLORIDE

FITS YOUR TREATMENT TO THE CAUSE

FECAL IRRITATION

Diaparene PERI-ANAL

FOR: Peri-Anal Dermatitis

CRITERIA: Inflammation centered around the anus from 3 to 4 cms. in diameter and frequent stools.

CAUSE: Transitional stools in the newborn, diarrhea or following oral antibiotics.[1]

MODE OF ACTION: Provides a skin coating with a competitive protein substrate, plus anti-enzymatic and antibacterial action in a water-repellent, cod-liver-oil base.[2,3]

URINE IRRITATION

Diaparene OINTMENT

FOR: Ammonia Dermatitis

CRITERIA: Presence of ammonia odor and buttock-inflammation in apposition to wet diaper.

CAUSE: Free ammonia liberated by urea-splitting organisms.

MODE OF ACTION: Prevents ammonia formation in voided urine with an antibacterial in a water-miscible base[4,5] . . . adjuvant therapy to routine Diaparene Rinse impregnation of diapers.[7,8]

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PHARMACEUTICAL DIVISION, HOMEMAKERS' PRODUCTS CORPORATION, NEW YORK 10, N. Y. TORONTO 10, CANADA

If you could "take apart" a droplet of *KONDREMUL* mineral oil emulsion...

...you would find it *different because*

each microscopic oil globule is encased in a tough, indigestible film of Irish moss for perfect emulsification and complete mixing with the stool.

KONDREMUL® PLAIN

COLLOIDAL EMULSION OF MINERAL OIL AND IRISH MOSS

for chronic constipation

KONDREMUL *Plain*—containing 55% mineral oil, bottles of 1 pt.

Also available: KONDREMUL *With Cascara* (0.66 Gm. per tablespoon), bottles of 14 fl. oz.; KONDREMUL *With Phenolphthalein* (0.13 Gm. per tablespoon), bottles of 1 pt.

highly penetrant... highly demulcent... highly palatable—no danger of oil leakage or interference with absorption of nutrients when taken as directed

THE E. L. PATCH COMPANY
STONEHAM, MASSACHUSETTS

especially for the carriage trade...

Children like Vi-Penta Drops because they taste good. Mothers like them because they are easy to give in milk, fruit juice, formula or dropped directly on the tongue. Doctors like them because they provide required amounts of vitamins A, C, D, and important B-complex factors, and because they're dated to insure full potency. Vi-Penta® Drops 'Roche' in packages of 15, 30 and 60 cc with calibrated dropper.

'For many years the natives of the Dutch Indies have used the squeezed juice of the Curcuma in the treatment of diseases of the liver'

Gallogen

Gallogen (gal-o-jen) is the Massengill name for the synthesized active principle of the ancient drug Curcuma. The isolation and synthesis of the active principle permits the administration of a pure, standardized form of the drug. Gallogen is a true choleretic, not a bile salt.

Gallogen acts directly on the hepatic cells. It stimulates the flow of bile which is whole in volume and composition. The choleresis is in proportion to the functional capacity of the liver and is prompt and lasting.

Gallogen is indicated whenever it is desirable to increase the flow of bile, encourage activity of the gallbladder and promote normal function of the biliary system.

send for professional literature and sample

Supply: in bottles of 100 and 1000 tablets containing 75 mg. of the diethanolamine salt of the mono-d-camphoric acid ester of p-tolylmethyl carbinol.

THE S. E. MASSENGILL COMPANY, Bristol, Tennessee

MODERN THERAPEUTICS

—Continued from page 100a

cardiac or renal disease?"

This question, important in medicine and to pharmacists, is considered in the "Diuretic Forum" question and answer section of a recent issue of the *Diuretic Review*, published by Lakeside Laboratories Inc.

"Whether there will be any danger depends particularly upon the type of fluid used for the enema," the item points out.

Several authorities suggested that enemata for patients with cardiac or renal disease should be routinely composed of an isotonic solution of an inert substance, such as gelatin (7%) to prevent the possibility of pulmonary edema.

The explanation given is that, "Excessive absorption of water solutions used as enemata can lead to water intoxication by producing sudden increases of intracellular fluid volume. If *isotonic* solutions are employed, the only effect will be to cause extracellular fluid dilution without important electrolyte changes.

"The normal kidney and heart can readily compensate for such changes. But in the presence of renal or cardiac insufficiency, excessive absorption of enema fluid, even if isotonic, might result in acute pulmonary edema."

First publication devoted exclusively to its subject, *Diuretic Review* reports research, clinical procedure and current trends in cardiorenal and electrolyte therapy. Lakeside publishes the Review for physicians, schools and libraries.

—Continued on page 108a

NOW—for that patient with CHRONIC FATIGUE

When the stress of life situations induces chronic fatigue, characterized by relative hypoglycemia and visceral spasm, Donnatal Plus (Tablets or new, palatable Elixir) provides the necessary anticholinergic blocking action, the mild sedation, and the high level of B-complex vitamin intake, that are necessary for successful management.

A. H. ROBINS CO., INC.
RICHMOND 20, VIRGINIA
Ethical Pharmaceuticals of Merit since 1878

DONNATAL PLUS

(Donnatal with B Complex)

TABLETS • ELIXIR

Robins

Each 5 cc. teaspoonful of Elixir, or each Tablet, contains:

Hyoscyamine sulfate	0.1037 mg.	Thiamine	3.0 mg.
Atropine sulfate	0.0194 mg.	Riboflavin	2.0 mg.
Hyoscine hydrobromide	0.0065 mg.	Nicotinamide	10.0 mg.
Phenobarbital (¼ gr.)	16.2 mg.	Pantothenic acid	2.0 mg.
		Pyridoxine hydrochloride	0.5 mg.

IMPORTANT

PLEASE USE THE NAME **KNOX** WHEN RECOMMENDING "GELATINE"

There's a reason for this as all "gelatines" are not alike.
Factory flavored brands are 85% sugar and only 10% gelatine.

- **KNOX** is all protein — no sugar.
- **KNOX** can be used in diabetic diets.
- **KNOX** can be used in high protein diets.
- **KNOX** can be used in reducing diets.
- **KNOX** can be used in low-salt diets.

For 64 years the Medical profession have found Knox dependable and the Knox family will always keep it that way.

32-Envelope Economy Size Package

4-Envelope Family Size

KNOX the real gelatine

all protein • no sugar

KNOX GELATINE • JOHNSTOWN, NEW YORK

—Continued from page 104a

Aureomycin Cuts Danger of Prostate Operations

Aureomycin is the most effective chemotherapeutic agent in preventing infection following prostate operations, Drs. C. D. Creevy and M. J. Feeney of Minneapolis report in the *Journal of Urology* [*71*:615-623(May 1953)].

"Prior to the advent of the antibiotics, infection was undoubtedly the most serious complication of operations upon the prostate," they write, citing estimates of mortality of 20 percent from a series in 1905 to rates around 5 percent for series studied in 1949 and 1950. They report a death rate of only 1.24 in the 888 cases on which their current paper is based. They attribute the continued improvement to the wide spectrum antibiotics.

Of the 10 chemotherapeutic agents tested in the series, "Aureomycin was the most effective drug used," they conclude. "It reduced the percentage of positive blood cultures from 45.7 percent in the controls to 17 percent; severe febrile reactions dropped to 1.6 and 'other infections' to 4.1 percent."

Choline Theophyllinate, a New Stable Form of Theophylline

Choline theophyllinate was developed as a true salt form of theophylline. It has a crystalline structure with a melting point of 187° to 189° C. It is soluble in water 1:1 as compared to a solubility of 1:120 for theophylline and 1:5 for aminophylline. The pH of an

—Continued on page 112a

HELP

for the Bowel-conscious Patient

CHOLAN HMB

acts promptly to provide:

1 **Hydrocholeresis –**
abundant fluid bile

2 **Spasmolysis –**
safe and dependable
relaxation of biliary tree

3 **Sedation –**
for the psychosomatics

CHOLAN HMB–

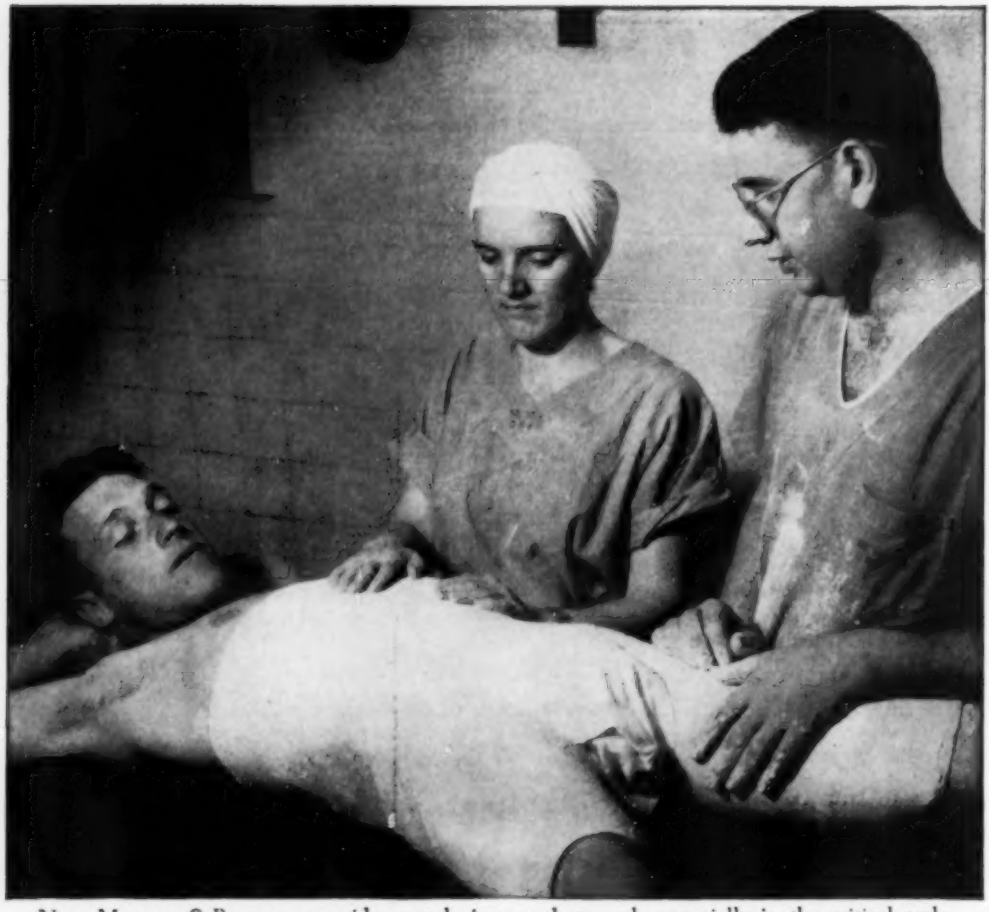
Dehydrocholic acid
250 mg.

Homatropine methylbromide
2.5 mg.

Phenobarbital
8 mg.

Maltbie

MALTBIE LABORATORIES, INCORPORATED, NEWARK 1, NEW JERSEY



NEW MELMAC® BANDAGE provides greatly increased strength, especially in the critical early stages when ordinary plaster casts break down so easily. Bandage for bandage, MELMAC has as much *as 2 to 4 times the strength of plain plaster.*

NEW—A MAJOR ADVANCE

IN PLASTER CAST TECHNIQUE

Now MELMAC® resin plaster of Paris and catalyst combined in one ready-to-use bandage.

With this revolutionary new material, MELMAC *resin* plaster of Paris BANDAGE, you can form stronger, lighter, thinner, water-and-urine-resistant casts and splints of every type and size required. There is nothing new to learn. Simply work with fewer bandages because MELMAC BANDAGE makes casts with greatly increased strength. Use it instead of plaster in fractures and preoperative, post-operative and corrective surgical procedures. 1. Just dip MELMAC BANDAGE into tepid water for 5 to 10 seconds. Squeeze out excess water *thoroughly*. Apply. 2. Use about half the usual number (or less). 3. Result: strong, light, thin water-resistant casts—no frayed edges. 4. Same disposal of waste as with ordinary plaster of Paris. 5. Remove thin cast easily with cast cutter, knife or cast saw.

PATENT APPLIED FOR

1. *More durable—to withstand hard usage on the job.* Casts of MELMAC BANDAGE take punishment of blows and sharp objects. Less need for recasting.

2. *Lighter weight—less bulk—on this 210 lb. patient.* New casts, about half the weight of plaster, encourage *mobilization of joints* to prevent stiffness. Patient easier to lift and move in hospital and at home. Lighter casts speed recovery, shorten hospitalization.

HANDY-TO-USE ROLLS AND SPLINTS OF MELMAC RESIN PLASTER OF PARIS BANDAGE

Bandages (rolls)	**Size**	2" x 3 yds.	3" x 3 yds.	4" x 3 yds.
	Product No.	2122	2123	2164
	Size	4" x 5 yds.	6" x 3 yds.	6" x 5 yds.
	Product No.	2124	2186	2126

Splints	**Size**	3" x 15"	4" x 15"
	Product No.	2133	2134

Sensitivity. Since this product may contain traces of formaldehyde, persons who are known to be sensitive to it should be observed closely for dermatitis. Operators using the bandage repeatedly should wear rubber gloves if skin sensitivity exists.

BRING YOUR OLD TYPE PLASTER OF PARIS BANDAGES UP TO DATE.
Dissolve MELMAC® Orthopedic Composition, a powder, in water in which ordinary plaster bandages are wet and you will have a cast that is comparable to the new MELMAC BANDAGE cast.

3. *Less recasting—new casts resist water and urine.* Cast of MELMAC BANDAGE resists wetting and protects against other housework hazards which would decompose plaster. Washable with soap and water. *Porous,* to permit free passage of air or exudates.

4. *Thinner casts—clearer x-rays.* X-rays penetrate thin "shell" of MELMAC BANDAGE cast for clear x-ray of congenital hip, so difficult with thick plaster.

Davis & Geck

MELMAC®

resin plaster of Paris **BANDAGE**

DAVIS & GECK, Inc., a unit of American Cyanamid Company, Danbury, Connecticut.
Sutures and Surgical Specialties

—Continued from page 108a

0.8 per cent aqueous solution is 9.7 as compared with 4.8 for the theophylline and 7.6 for aminophylline. The acute oral toxicity in mice is 770 mg./Kgm. as compared with 585 mg./Kgm. for aminophylline.

Writing in *Int. Rec. of Med. and Gen. Practice Clin.* [*167*:245(1954)], Duesel and Fand suggested that, since choline theophyllinate is more soluble and considerable less toxic than aminophylline, it should provide a superior form for the administration of theophylline. It was thought that gastric irritation should be less and that absorption should probably be greater.

The Treatment of Dermatoses With Antibiotics

A careful and extended study of about 5000 patients who were treated with antibiotics over a period of about 4 years revealed a number of important factors in the treatment of dermatoses with these agents.

Robinson reported in *U. S. A. F. Med. J.* [*5*:953 (1954)] that the ideal antibiotic for use in local therapy is one which is not used systemically. When systemic therapy is given over a long period of time there should be rest periods in the therapy in order not to destroy the natural flora of the skin. Long continued administration also greatly increases the danger of the development of fungal infections.

Neomycin is the antibiotic of choice for the local therapy of the pyodermas although chlortetracycline, oxytetracycline, erythromycin and carbomycin are effective. Local therapy rather than systemic therapy should be used where it is effective, such as, in impetigo contagiosa, ecthyma, and secondarily infected dermatoses. In furunculosis, erysipelas, lymphangitis, and cellulitis systemic therapy is necessary. In systemic therapy chlortetracycline, oxytetracycline, erythromycin, and carbomycin are effective.

In the treatment of syphilis, penicillin is the drug of choice but chlortetracycline, oxytetracycline, chloramphenicol, and erythromycin all may be used effectively. Penicillin is the only systemically administered antibiotic which is not effective in the treatment of granuloma inguinale. Likewise, penicillin and streptomycin are the only systemic antibiotics not effective in erythema multiforme. In the treatment of acne vulgaris, none of the antibiotics can be considered more than adjuncts to therapy.

All antibiotic therapy is definitely contraindicated in moniliasis, gastroenteritis, chronic discoid lupus erythematosus, and in various other diseases where statistical studies prove that they are of no value or where there is a history of sensitivity to the local application of a particular antibiotic.

Ringworm of Scalp

W. A. Casper and J. Malone [*N. Y. State J. Med.*, (June 1, 1954)] recommended these control measures: (1) all recognized cases be reported to school authorities, (2) all students in same class be inspected, (3) if cases are in 2 or more classrooms entire school population under 15 be inspected, (4) infected children should be required to

—Continued on page 118a

WHEN THE PATIENT IS "HALF-SICK"

THE SYMPTOMS are vague: Headache, digestive discomfort, gastric hyperacidity, anorexia, general uneasiness; nothing to indicate definite pathology. But there is a clue to the cause of this "half-sick" feeling—frequently recurring constipation.

The patient may have been hopefully taking a bulk laxative for relief. This merely contributed to the variety of symptoms by a feeling of overfulness of the stomach and further impairment of the appetite.

Such an unrevealing symptom complex may be a challenge to diagnostic insight and an opportunity for psychosomatic approach to treatment by proving to the patient, first of all, that he can obtain effective relief quickly, not in the indefinite future. The patient's mind is set at ease and he becomes cooperative in the therapeutic aim of re-education to regular bowl habits.

Immediate relief of constipation and treatment leading to bowel regularity is simplified and facilitated by Ex-Lax. The laxative ingredient of Ex-Lax, phenolphthalein, is biologically standardized for uniform efficiency. Its action is similar to that of the anthraquinones or emodins,[1, 2] the "tonic cathartics."[1] Beckman[3] states that "it is usually given at bedtime and in the morning produces a stool very much like the normal."

Of special advantage in the treatment of constipation is the continuing action of phenolphthalein. By being excreted into the intestine through the bile, it exerts a gradually decreasing, mild aperient action up to four days.[1, 2, 4, 5, 6, 7, 8, 9] This not only prevents the secondary constipation often following the use of a cathartic, but permits reducing the frequency of medication in the more prolonged treatment of habitual constipation. The "tonic" influence and gentle stimulation of peristalsis after the initial action enable the colon to regain its normal functioning efficiency.

The unusual palatability imparted by its chocolated base makes Ex-Lax especially suitable for use when pleasant taste is an essential consideration, as during pregnancy and in administration to children. According to Beckman,[10] "infants of 18 months may be given as much as 30 mg. (½ grain)" of phenolphthalein. This is one-half of the U.S.P. dose of one grain for adults. Thorough distribution of the laxative ingredient in Ex-Lax, by a special process, assures that fractional parts of a tablet always yield a proportionate dose.

A professional trial supply of Ex-Lax, along with a Physician's Pocket Notebook, bound in leather, gold-stamped and containing medical reference information, gladly sent to physicians.

Ex-Lax, Inc., Brooklyn 17, New York

1. W. A. Bastedo: Pharmacology, Therapeutics and Prescription Writing. W. B. Saunders Co., 1947; page 198.
2. T. Sollmann: Manual of Pharmacology. W. B. Saunders Co., 1948; page 177.
3. H. Beckman: Treatment in General Practice. W. B. Saunders Co., 1946; page 578.
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10. H. Beckman: Pharmacology in Clinical Practice. W. B. Saunders Co., 1952; page 369.

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VI-DAYLIN®

(HOMOGENIZED MIXTURE OF VITAMINS A, D, B_1, B_2, B_6, B_{12}, C AND NICOTINAMIDE, ABBOTT)

A full day's serving
of eight important vitamins
(including 3 mcg. of body-building B_{12})
in each golden spoonful.

Each 5-cc. teaspoonful of VI-DAYLIN contains:

Vitamin A	3000 U.S.P. units
Vitamin D	800 U.S.P. units
Thiamine Hydrochloride	1.5 mg.
Riboflavin	1.2 mg.
Pyridoxine Hydrochloride	0.5 mg.
Ascorbic Acid	40 mg.
Vitamin B_{12}	3 mcg.
Nicotinamide	10 mg.

kids love VI-DAYLIN right from the spoon

Delicious lemon-candy flavor and aroma. No pre-mixing, no droppers, no refrigeration. Mixes easily in milk, cereals or juices. Now with vitamin B_6 added. In 90-cc., 8-fluidounce and economical one-pint bottles. Abbott

409184

Still More Clinical Research Proving the Value of

Roncovite

in anemia therapy—

The rapidly expanding volume of clinical research continues to prove the effectiveness and safety of Roncovite in the common forms of anemia.* These clinical studies of the effect of cobalt-iron have produced gratifying results in several types of anemia.

AREAS OF CLINICAL STUDY INCLUDE:

- iron deficiency anemia
- anemia in chronic infection
- anemia in pregnancy
- anemia in infants and prematures

Cobalt in therapeutic dosage exerts a specific erythropoietic effect on the bone marrow. Roncovite provides the supplemental iron to meet the need of the resulting accelerated hemoglobin formation.

— and from 1954 clinical reports

"We agree with Waltner (1930) and Virdis (1952) that iron should be given together with cobalt to obtain the most satisfactory results."[1]

"Evidence suggests that iron and cobalt provide the most effective hematinic for pregnant women."[2]

"The babies were closely observed daily for ill effects of the medication while at the premature unit and when they returned for check-ups. None of them showed harmful effects despite the large doses."[3]

SUPPLIED

RONCOVITE TABLETS

Each enteric coated, red tablet contains:

Cobalt chloride ..... 15 mg.
Ferrous sulfate exsiccated .... 0.2 Gm.

RONCOVITE DROPS

Each 0.6 cc. (10 drops) provides:

Cobalt chloride ..... 40 mg.
(Cobalt ....9.9 mg.)
Ferrous sulfate ..... 75 mg.

RONCOVITE-OB

Each enteric coated, red capsule-shaped tablet contains:

Cobalt chloride ..... 15 mg.
Ferrous sulfate exsiccated ..0.2 Gm.
Calcium lactate ..... 0.9 Gm.
Vitamin D ..... 250 units

DOSAGE

One tablet after each meal and at bedtime; 0.6 cc. (10 drops) in water, milk, fruit or vegetable juice once daily for infants and children.

***Bibliography of 192 references available on request.**

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3. Quilligan, J. J., Jr.: Effect of a Cobalt-Iron Mixture on the Anemia of Prematurity, Texas St. J. Med. *50*:294 (May) 1954.

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The original, clinically proved, cobalt-iron product.

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In the Service of Medicine Since 1870

—Continued from page 112a

undergo immediate treatment, (5) properly treated children should be allowed to attend school, (6) unusually high incidence should be reported to state health department for assistance, and (7) carrier question should be dealt with.

While x-ray epilation is the best method of dealing with ringworm of the scalp, the authors state that it "is without biologic effect on the fungi," hazardous, and requires expert dermatologic supervision. They prefer a trial period of at least two months with local medication before resorting to x-ray therapy and report good results with Decupryl Liquid, a solution of copper undecylenate, undecylenic acid with a wetting agent, aerosol, in a solvent liquid base containing isopropanol and tetrachloroethylene.

Management of Pylorospasm in Infants with Procaine Amide

Procaine amide (Pronestyl) was given orally to 6 infants with pylorospasm, usually in doses of 15 mg. in water. Marked improvement was obtained in 4 of these infants but no apparent benefit was obtained in 2 of the cases.

Sadove, *et al* writing in *J. A. M. A.* [*154*:1328(1954)] indicated that these results would suggest that further trial of this drug in pylorospasm should be undertaken. They pointed out, however, that any infant receiving this drug should be carefully watched for the

—Concluded on page 120a

IN
GASTROINTESTINAL
SPASM

Barbidonna®

offers the logical combination of natural belladonna alkaloids and phenobarbital—a combination which provides smooth spasmolysis and balanced sedation.

EACH TABLET OR FLUIDRAM OF ELIXIR CONTAINS:

PHENOBARBITAL	16 mg. (¼ gr.)
BELLADONNA ALKALOIDS	0.13 mg.

(Incorporated as Hyoscyamine sulfate 0.1286 mg. Atropine sulfate 0.0250 mg. and Scopolamine hydrobromide 0.0074 mg.; approximately equivalent to 7 min. Tr. Belladonna.)

VANPELT & BROWN, INC. Richmond, Virginia

—Concluded from page 118a

development of side effects such as cardiac changes, central nervous system stimulation or depression, or blood constituent changes. No significant side effects were observed in these patients.

The possible mode of action of the drug was discussed.

Tace Used to Suppress Postpartum Lactation

A synthetic chemical, Tace (chlorotrianisene), having actions like the female sex hormones, was used in the suppression of postpartum lactation in 60 patients. It was found that breast pain was relieved in 93 percent of the women. The drug was administered on the first postpartum day and continued for 7 days at a dosage level of 12 mg. four times a day. Hendricks reported in *J. Clin. Endocrinol. Metab.* [*14*:339 (1954)] that the drug is apparently stored in the body fat and released gradually over a prolonged period of time. The author also pointed out that no withdrawal bleeding occurred following the discontinuation of therapy. The latter symptom is frequently encountered after estrogen therapy.

The Effect of Stilbenes on Mycoses

Stilbamidine and related compounds have been given experimentally for the treatment of clutaneous and systemic mycotic infections. Curtis *et al*, reported in *U. S. A. F. Med. J.* [*5*:949(1954)] that they gave stilbamidine in daily doses of 150 mg. by slow intravenous drip to 5 patients with cutaneous and systemic blastomycosis. Remission was obtained in all of the cases but recurrences occurred in three of the patients. The drug was given by slow intravenous drip in order to reduce the incidence of side effects. Slight and transient nausea and dizziness occurred among these patients. However, one patient developed leukopenia and, on another occasion, signs of hepatic insufficiency such that the course had to be interrupted.

The toxic side effects and recurrences indicate need for further study of stilbamidine and related compounds as to their usefulness in the treatment of systemic mycotic infections.

Q Fever Looks Like Pneumonia

Aureomycin should be the drug of choice in individuals with atypical pneumonia who have failed to respond to penicillin, especially when it occurs in persons employed on ranches during the lambing season, according to Dr. Paul F. Miner in *Northwest Medicine* [*53*:480-481(May 1954)]. In those cases, he points out, the cause of the symptoms may be Q Fever, a rickettsial disease which resists penicillin.

Q Fever, first recognized in 1937, is much more common than formerly supposed, Dr. Miner says. Slaughter house and farm workers are particularly vulnerable. While seldom fatal, Q Fever subjects its victims to high fever and pneumonia-like symptoms for a fortnight. There was no treatment before the broad range antibiotics.

*"a preoperative treatment of choice"**

ITRUMIL® SODIUM

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substernal thyroid enlargements

thyroid glands with diffuse hyperplasia

From a study of 70 surgical patients, McClintock and Lyons found that subtotal thyroidectomy was easier in patients prepared with ITRUMIL than with other methods. Among their other favorable findings:

- Many patients had relief of pressure symptoms.
- Drop in pulse rate was sustained.
- 20 patients had significant preoperative weight gains.
- There was almost no oozing from the gland at operation.
- Friability was not a problem.
- Postoperative course was smooth.
- Low incidence of side effects.

50-mg. scored tablets
Bottles of 100 and 1000.

ITRUMIL ... *a unique antithyroid drug with a unique mode of action*

*McCLINTOCK, J. C., AND LYONS, J. J. A.: N. Y. STATE J. MED. 51:1633, 1951

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Capsules: Bottles of 100, 500 and 1,000

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123a

NEWS AND NOTES

Million Dollars Contributed for Medical Education

More than a million dollars in contributions by American physicians during 1953 have been turned over to the National Fund for Medical Education to ease the financial plight of the nation's medical schools.

Dr. Edward L. Turner, Chicago, secretary-treasurer of the American Medical Education Foundation, announced today that a check for $1,101,578.31 has been given to the national fund. This includes a $500,000 grant by the A.M.A. Board of Trustees.

Doctor Turner said the contributions sent in by doctors throughout the nation is an example of outstanding service in aiding humanity through medicine.

The 79 great institutions of medical learning now graduate more than 6,000 doctors each year. In providing the proper instruction for these young men, our medical schools have an annual financial need of approximately $10,000,000 in addition to their normal budgets.

American doctors have come to the aid of these schools with their contributions through the American Medical Education Foundation.

Evidence of the doctors' interest in supporting the schools rather than relying on federal subsidy is demonstrated by the marked increase in the number of contributors during the past three years.

In 1951, the first year of the AMEF, 1,876 doctors contributed to the fund. In 1952, there were 7,259 contributors and the list skyrocketed to 18,159 during 1953.

Since 1951, the American Medical Education Foundation has received $3,563,883.09 as gifts from doctors to support the medical schools. The American Medical Association has made grants of $2,000,000 of this sum.

The National Fund for Medical Education is a non-profit corporation that solicits contributions from business and industry for the benefit of medical education. The fund also acts as distributing agency for monies collected by the education foundation.

New Methods Aid Scientists in Search for Anti-Arthritic Drugs

Two methods to aid scientists in their search for anti-arthritic drugs have been developed by University of Wisconsin endocrinologists Roland K. Meyer, Elva G. Shipley, Jacob C. Stucki, and Kenneth A. Aulsebrook.

The scientists also hope the methods will be of use in learning more about the conditions that give rise to the disease. They may even help scientists learn more about changes in hormone balance that take place during pregnancy.

The work has provided a hint that an as yet unidentified but powerful hormone is produced by the placenta or uterus during pregnancy.

Immediate use of the methods, however, will probably be made in the hunt for anti-arthritic drugs which would not cause the undesirable side effects pro-

—Continued on page 126a

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duced by cortisone and other natural hormones.

One of the methods is based on the fact that a particular kind of tissue known as granuloma tissue will grow into and around a small cotton pellet if it is inserted under the skin. The rate of tissue growth depends upon the level of cortisone and related compounds in the body. When the cortisone level is high, granuloma tissue growth is very slow.

To test the effect of hormones and drugs, scientists insert cotton pellets under the skin of laboratory animals after a few days. The weight of the pellet and tissue reveals whether the hormones or drugs inhibit the growth of granuloma tissue. If they do, they may be helpful in arthritis and will be tested further.

The second method is based on the fact that knee joints of rats can be damaged by certain chemicals, and the inflammation resulting is similar to that of arthritis. The amount of damage can be measured by testing the permeability of joint membrane with dyes and radioactive tracers. Then, the effect of cortisone and other anti-arthritic substances also can be measured.

It has been known for centuries that arthritic women have no symptoms of arthritis during pregnancy. The reason is that additional quantities of cortisone or similar substances are released by the adrenal glands and possibly the

—Continued on page 128a

—Continued from page 126a

ovaries, fetus, and placenta. These hormones—which help the body meet the added requirements of pregnancy—incidentally reduce or prevent the inflammation of arthritis.

The same thing happens, the scientists say, when animals are subjected to cold temperatures. Anti-inflammatory substances are produced in greater quantities and inflammatory reactions are reduced.

Under both conditions, cold and pregnancy, the increased hormone production can be measured by the cotton pellets or the joint damage test.

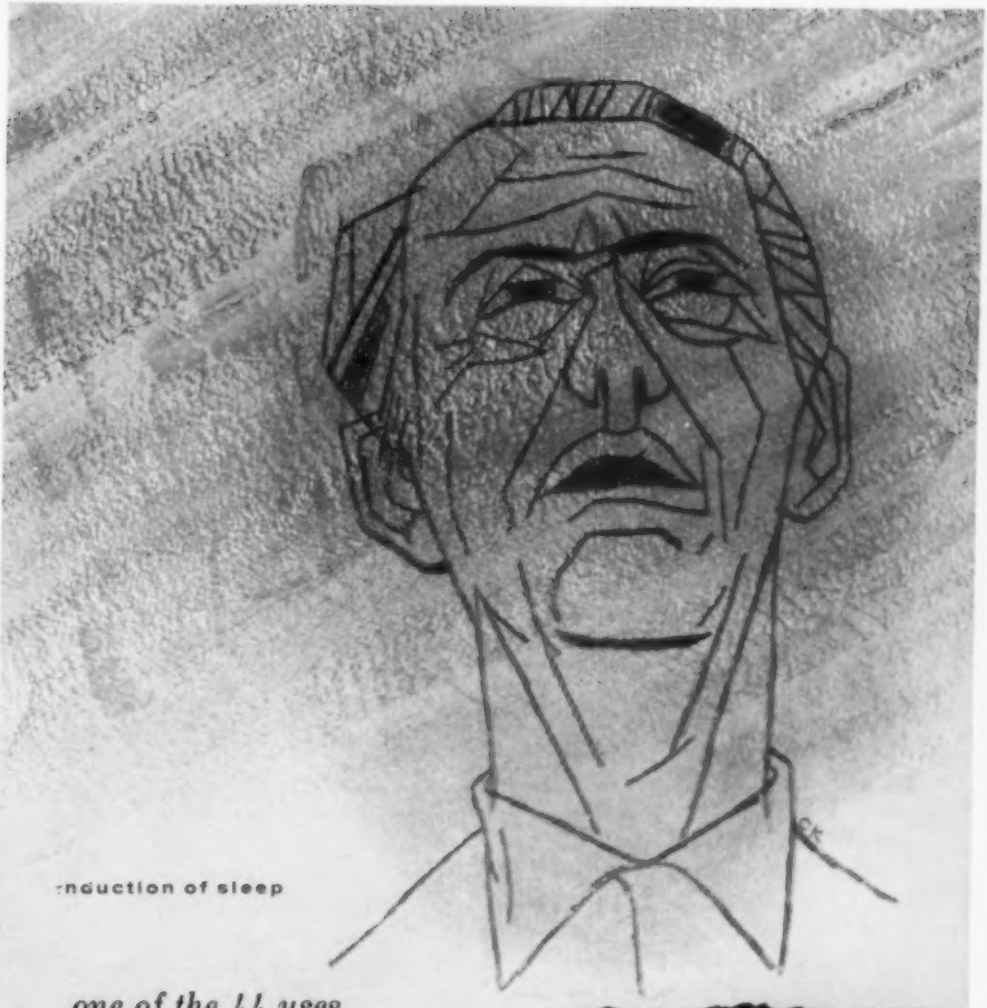
The Wisconsin scientists say that a unique anti-inflammatory hormone may be produced by the placenta. Removal of any one of the cortisone-producing glands during pregnancy results in compensatory production by the others. Removal of the placenta, however, apparently results in a striking decline in total hormone level.

Additional research is now being conducted with placental tissue extracts to find and isolate the substance that apparently causes these effects—or, if no such substance exists, to learn how the hormones produced during pregnancy protect the mother against inflammatory agents and stresses.

Homeless Men Probably Spread Much TB

The homeless men of "Skid Row" quite probably are a major source for

—Continued on page 130a



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Nembutal

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3. *Hence, there's less drug to be inactivated, shorter duration of effect, wide margin of safety and little tendency toward morning-after hangover.*

4. *In equal oral doses, no other barbiturate combines quicker, briefer, more profound effect.*

Sound reasons why—after 24 years' use—more barbiturate prescriptions call for NEMBUTAL. How many of short-acting NEMBUTAL'S 44 uses have you prescribed? Abbott

409185-A

—Continued from page 128a

the spread of tuberculosis in the United States, a Minneapolis survey showed today.

An 11-month study of the client population of the Minneapolis Salvation Army Men's Social Service Center showed the rate of new cases of tuberculosis was 55 times as great as the rate in the city's general population during the same period.

The survey was reported in a recent issue of the *Journal of the American Medical Association* by Dr. Herbert W. Jones, Jr., medical director of the service center, Jean Roberts, Minneapolis director of public health records and statistics, and John Brantner, clinical director of the center.

Most of the men studied came to the center voluntarily from Skid Row. About 70 per cent of them said "the abusive use of alcohol" was their major problem. Only 30 per cent were residents of Minneapolis, and 20 per cent residents of Minnesota. Fifty per cent had no established residence in any state.

The high rate of tuberculosis occurred in a highly mobile group living under conditions likely to foster infection of others in the same group, the writers said.

The men in this group generally sleep in dormitories, whether in cheap hotels or in the various rehabilitation centers throughout the country, they said. They are generally in a fatigued physical condition, and their standards of cleanliness and personal hygiene tend, through economic necessity, to be low.

This rate occurs in a population group that is very likely to take temporary jobs as food handlers—cooks, cooks' helpers, dishwashers, etc.—situations in which the possibility of transmission of the disease to the general population is a factor.

They said there is no reason to believe the incidence in Minneapolis is much different from the rate in other cities. In fact, the incidence might be higher if the survey had covered the older, more permanent residents of Skid Row, they said.

This survey reveals an important aspect of the public health problem of tuberculosis, they said. The homeless men quite probably constitute a primary source of reinfection for tuberculosis in the United States.

Any public health program that has as its aim the eradication of tuberculosis in our population should take particular account of this segment of the population.

Recurrent Tuberculosis Meningitis Can Now Be Cured

Recurrences of tuberculous meningitis—one of the more difficult forms of meningitis to treat—no longer mean that recovery is hopeless.

There is even a possibility that recurrences need not prevent pregnancy, three physicians wrote recently in the *Journal of the American Medical Association.*

They reported on what appears to be one of the most prolonged instances of treatment with complete recovery from the disease since the introduction of streptomycin.

The patient, 15 years old when first admitted to the Cook County Hospital in Chicago, recovered, and later bore

—Continued on page 134a

For every patient
with clearcut menopausal
symptoms such as **hot flushes,**
there's another patient with symptoms less clearly defined
yet just as distressing . . . headaches,
insomnia, mental and physical fatigue.
Her symptoms may also be indicative of declining ovarian function, and occur
several years before, and even long after, menstruation ceases.
This patient, too, may be expected to **benefit** from "Premarin" therapy.

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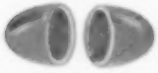

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—Continued from page 130a

three "robust and healthy children." For two years since her third child was born, she has been free of any symptoms of the tuberculous condition, and has successfully recovered from attacks of syphilis and jaundice.

The disease, a common form of meningitis in which the membrane enclosing the brain and spinal column becomes inflamed, sometimes leaves an apparently-recovered patient subnormal mentally, or with paralysis. The Cook County Hospital patient was treated for several recurrences between October, 1947, and September, 1948. Frequent check-ups since then have shown her to be in good health.

Among the commoner forms of meningeal infection, tuberculous meningitis continues to be the most resistant to modern treatment, the physician said. "Even for those patients who survive the early stages of the disease, there can be no assurance that a complete recovery will be accomplished. If treatment is discontinued too soon, a relapse may occur.

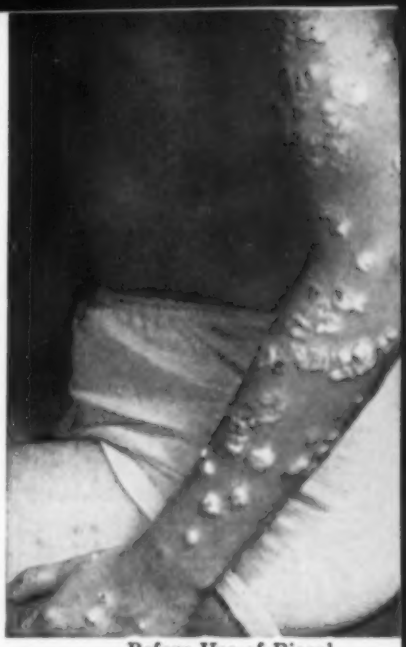
This case shows that recurrences do not necessarily mean that recovery is hopeless—they only mean that treatment should again be instituted most vigorously, the physician said.

It also shows that the disease can be cured without resorting to the old method of injecting medication into the spinal canal, they said. The Cook County Hospital patient was given intramuscular injections of streptomycin.

Finally, the case "strongly suggests" that healed tuberculous meningitis need

—Continued on page 142a

PSORIASIS in children responds to RIASOL



Before Use of Riasol

After Use of Riasol

"Psoriasis is a common affection in children from the age of five or six years onwards," write the pediatrists, Hugh Thursfield and Donald Paterson, in their textbook *Diseases of Children*. "In all cases of psoriasis in children it is possible to remove the eruption by local measures."

To help avoid recurrence, it is important to eradicate every single patch of psoriasis in children. RIASOL, with its long record of successful use, is your first choice. RIASOL also has the advantage of taking the place of dangerous internal medications.

RIASOL used in time often helps reduce the danger of a lifetime of recurrences.

RIASOL may also prevent the childhood psychological frustration which so often results from this disfiguring disease.

RIASOL contains 0.45% mercury chemically combined with soaps, 0.5% phenol and 0.75% cresol in a washable, non-staining, odorless vehicle.

Apply daily after a mild soap bath and thorough drying. A thin invisible, economical film suffices. No bandages required. After one week, adjust to patient's progress.

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For the many thousands of patients with essential hypertension, there is new hope for longer, happier lives. RESERPOID* (Upjohn brand of reserpine) is the active, pure alkaloid of Rauwolfia serpentina. In just 1/1000 mg., Reserpoid matches the potency of 1

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mg. of the whole root... Reserpoid carries non-hypnotic sedation and bradycardic action along with its principal antihypertensive effect. It is a persistently pleasant drug: usually even before the pressure falls, a sense of calm settles over the anx-

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postural hypotension . . . Reserpoid has no presently defined contraindications. It is ideal for the "average" case—that large group of mild and moderate hypertensives who have symptoms, but no demonstrable pathology. In severe hypertension with advancing vas-

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cular damage, Reserpoid is valuable in augmenting and stabilizing the effects of other, more drastic drugs—making their smaller dosage possible. Reserpoid therapy is not encumbered by the difficulties of delicate titration. Just 1 mg. of Reserpoid daily, taken in

—Continued from page 134a

not prevent pregnancy, they said. The report was made by Drs. Archibald L. Hoyne and Allen Schultz, Chicago, and Dr. Jerome H. Diamond, now of South San Francisco.

Garden Soil May Me Source of Once-Rare Disease

Garden soil, particularly if taken from around chicken houses, may be the source of a form of lung disease once considered rare and fatal.

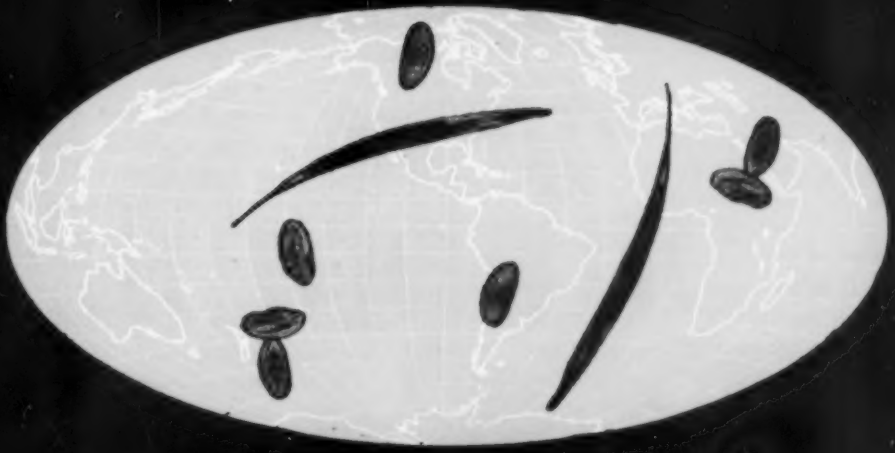
The danger of spreading the fungus which causes the disease should be considered by gardeners, according to a recent issue of the *Journal of the American Medical Association.*

Two physicians and two scientists reported a case of the pneumonia-like disease, histoplasmosis, which resulted from inhaling the dust of infected soil. The patient suffered severe headaches, sore throat, general aches, and fever not long after sifting soil bought for his garden. He said the soil was dry and contained chicken feathers. It later was proved to contain the disease-causing fungus, Histoplasma capsulatum.

A neighbor who used the same soil in her flower beds suffered a similar illness, but soil tests taken several months

—Continued on page 144a

for "This Wormy World"



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Bottles of 4 fluid ounces and 1 pint

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—Continued from page 142a

later did not show fungus. Both patients recovered without apparent aftereffects.

Epidemics of the disease often have been associated with inhalation of dust in abandoned houses, dusty silos, storm cellars, and chicken coops, the article said. Chickens probably are not the source of the infection but areas frequented by chickens may favor development of the fungus.

It said the experiences of the two patients reported on differed from all other reports because these patients were exposed to material commonly used by gardeners and commonly transported to noninfected areas.

Instead of a disease confined to groups of persons entering on or working at a remote or unfrequented site, it is apparent that smaller groups of persons may be exposed during a common procedure around the house, the article said.

The danger of infecting new areas with H. capsulatum and the danger of exposing new persons should be considered in gardening, it said. There is a potential hazard of sifting garden dirt in areas where histoplasmosis is common.

The report was made by John H. Kier, M.D., and Wheelan D. Sutliff, M.D., Memphis; Charlotte C. Campbell, B.S., Washington, D.C., and Libero Ajello, Ph.D., Chamblee, Ga.

"Athletic Heart" Theory Questioned

The term "athletic heart" should be scrapped because it is used with too many different meanings to describe a condition that "probably does not exist," according to an editorial in a recent issue of the *Journal of the American Medical Association.*

It said the many reports on the effect of exercise on the heart lead only to the conclusions that "infections are more important as a cause of cardiac disease than exercise even when strenuous will not damage a normal heart, and that persons with a heavy body build have a lower life expectancy than those with a lighter build regardless of the type or extent of their participation in sports."

However, there can be "no doubt" that strenuous exercise may injure a heart that is already weakened, and young athletes should have close medical supervision, the editorial added.

Awards to Teachers and Researchers Announced

Fourteen outstanding medical school teachers and researchers have been named to receive grants totalling $270,500 this year from the Lederle Laboratories Division of the American Cyanamid Company, it was announced today.

The Awards, believed to be the first of their kind in this field, are intended to augment salaries or to help schools fill teaching or research positions. Their basic purpose is to help assure that more promising medical men can afford to remain in teaching and research work at schools and universities.

The Awards will be administered by a Committee of professors drawn from medical schools throughout the United States. This year's Committee, which named the 14 winners, includes: Dr. Windsor C. Cutting, San Francisco,

—Concluded on page 146a

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A NEW EXPERIENCE

RAUWIDRINE—a new experience in serenity and pleasant confidence for the depressed and melancholy, the dispirited and frustrated patient.

The contained Rauwiloid not only creates the feeling of serenity but also largely prevents the cardiac pounding, tremulousness and insomnia so often produced by amphetamine alone—and without the use of barbiturates.

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Rauwidrine combines 1 mg. of Rauwiloid with 5 mg. of amphetamine in one slow-dissolving tablet.

For mood elevation, usual initial dosage, 1 to 2 tablets before breakfast and lunch.

For obesity, 1 or 2 tablets 30 to 60 minutes before each meal.

Physicians are invited to send for clinical test samples.

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—Concluded from page 144a

California; Dr. Robert F. Pitts, New York, N. Y.; Dr. Morris F. Shaffer, New Orleans, La.; Dr. Maxwell Finland, Boston, Mass.; Dr. George Sayers, Cleveland, Ohio; and Dr. Douglas H. Sprunt, Memphis, Tenn.

All grants made through the Lederle Medical Faculty Awards Committee are for a term not exceeding three years, and no single grant can exceed $10,000 per year.

Record Number of Physicians Licensed to Practice Medicine

An all-time record number of physicians — 218,522 — were licensed to practice medicine in the United States at the close of 1953, it was disclosed in the 52nd annual report on medical licensure of the American Medical Association's Council on Medical Education and Hospitals.

Of this total, 156,333 were engaged in private practice, 6,677 were engaged in full-time research and teaching and were physicians employed by insurance companies, industries, and health departments, 29,161 were interns and residents in hospitals and those engaged in hospital administration, 9,311 were retired or not in practice, and 17,040 were in government service.

According to the report, during 1953 there were 14,434 licenses to practice medicine issued by the 48 states, the District of Columbia, Alaska, Canal Zone, Guam, Hawaii and Puerto Rico—an increase of 1,206 over the number issued during 1952 and the third largest number issued in the history of this country. Of this total, 6,565 were granted after written examination and 7,869 by reciprocity or endorsement of state licenses or the certificate of the National Board of Examiners. The majority of those issued by reciprocity or endorsement were to already licensed physicians who moved their practice from one state to another.

The data presented in the report showed that last year 7,276 physicians received their first license to practice medicine. In the same period there were approximately 3,421 deaths of physicians reported, so that there was a net gain of 3,855 in the physician population in the United States and its territories and outlying possessions. During 1952, there was a net gain of 2,987.

Long-Acting Penicillin Useful for Infections

Tests on patients with infections from burns, compound fractures and surgery show one shot of a new long-acting penicillin can replace multiple injections of penicillin.

Dr. John R. Hankins and George H. Yeager, University Hospital department of surgery, Baltimore, said the one-shot treatment controlled infection in all 46 patients tested, most of whom would ordinarily have required several doses of other penicillin types.

. . . often effective *where oral aminophylline has failed*

. . . often tolerated *where oral aminophylline is not*

CHOLEDYL®

(choline theophyllinate, NEPERA)

the new *oral xanthine medication*

A symposium on CHOLEDYL was published recently (May, 1954) in the International Record of Medicine and General Practice Clinics. Here are three of the principal advantages of CHOLEDYL over oral aminophylline, as noted in this study—*

markedly higher blood levels

" . . . the ingestion of choline theophyllinate [choledyl] induced markedly significant increases in the theophylline blood levels when compared to those obtained after aminophylline. The increase was 60 to 75 per cent higher for the first two hours. . . ."[1]

(The therapeutic effect of aminophylline is due solely to its theophylline content.)

minimal side effects

". . . gastrointestinal irritation with choline theophyllinate [choledyl] was a rare occurrence."[2]

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"Of great interest was the absence of the development of tolerance or resistance to the effects of the drug even after choline theophyllinate [choledyl] had been administered to patients for as long as 75 weeks."[3]

CHOLEDYL for *planned* diuresis, *prolonged* coronary vasodilation, *continued* relief of bronchospasm, *relief* and *prevention* of premenstrual tension

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supplied: *100 mg. tablets, bottles of 100 and 500;*

200 mg. tablets, bottles of 100, 500 and 1000.

dosage: Adults—*initiate with 200 mg. q. i. d.—preferably after meals and at bedtime. Adjust to individual requirements.* Children over six—*100 mg. t. i. d.*

1. Gagliani, J., et al.: Internat. Rec. Med. & Gen. Pract. Clin. *167*:251, 1954.
2. Grossman, A. J., et al.: Internat. Rec. Med. & Gen. Pract. Clin. *167*:261, 1954.
3. Batterman, R. C., et al.: Internat. Rec. Med. & Gen. Pract. Clin. *167*:261, 1954.

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Beautiful handmade and painted jars, imported from Germany. Wide assortment of styles and sizes. Rich colors. Ideal for office decorations, lamp bases, as vases, for mantel pieces, as gifts, etc. Limited supply, so order now. For complete details write Box 2W, Medical Times.

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LOWILA® Cake is

valuable as a cleanser for the skin of the newborn infant, especially the offspring of an allergic family, for the child suffering from infantile eczema, and for the delicate skin of the premature infant. Lowila Cake is also indicated as a cleanser for infants with "heat rash" or miliaria, and ammoniacal dermatitis.

These observations by Drs. L. S. Nelson and A. V. Stoesser are reported in "Cleansing Agents — Irritating and Non-Irritating to the Skin", published in the September-October 1953 issue of Annals of Allergy.

Prescribe **LOWILA** Cake as a skin cleanser in allergic or dermatitic conditions when soap irritates.

LOWILA Cake contains NO alkali — NO fatty acids — and NO perfumes.

LOWILA Cake maintains the normal "acid mantle" of the skin at pH 4.5-5.5.

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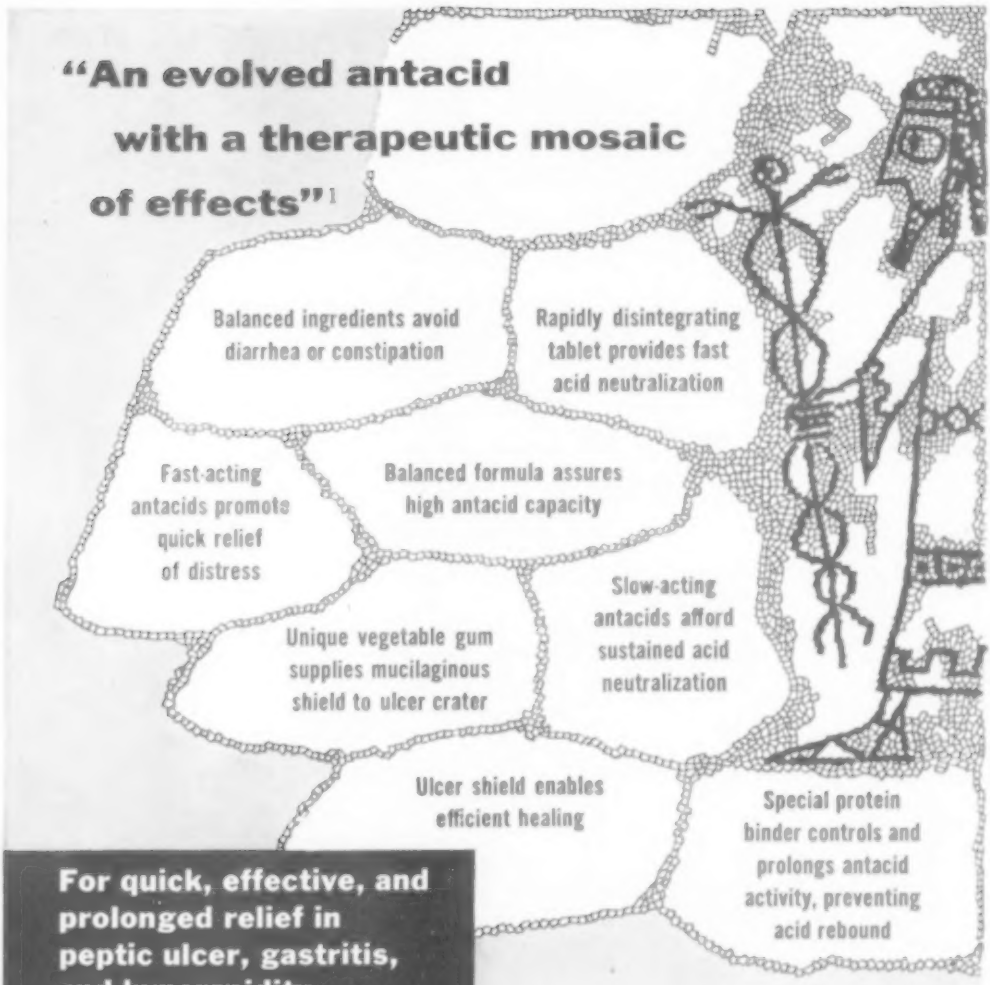

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Trevidal is available in boxes of 100 tablets, specially stripped for easy carrying.

*Trade Mark †Protein binder from oat ‡Cyamopsis tetragonoloba gum

[1]C. B. DeCourcy, and C. Rhomberg, Staff. Conf. DeCourcy Clinic, 26, June 15, 1954

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DEPROTEINATED PANCREATIC EXTRACT

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References: 1. South. M. J. 31:233, 1938.
2. Am. Heart J. 18:425, 1939.